10/764,273

(FILE 'HOME' ENTERED AT 15:37:05 ON 08 DEC 2005)

FILE 'REGISTRY' ENTERED AT 15:37:40 ON 08 DEC 2005
L1 STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1 STR

G1 Si,Al,Ce,Hf,La,Nb,Ni,Ta,Ti,V,Zr

G2 Me,Et

G3 [@1],[@2]

Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 15:38:11 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 16964 TO ITERATE

11.8% PROCESSED 2000 ITERATIONS 13 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 331481 TO 347079
PROJECTED ANSWERS: 1575 TO 2835

L2 13 SEA SSS SAM L1

=> s l1 full
FULL SEARCH INITIATED 15:38:17 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 342157 TO ITERATE

100.0% PROCESSED 342157 ITERATIONS 1699 ANSWERS
SEARCH TIME: 00.00.01

L3 1699 SEA SSS FUL L1

=> fil caplus
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	161.33	161.54

FILE 'CAPLUS' ENTERED AT 15:38:31 ON 08 DEC 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 8 Dec 2005 VOL 143 ISS 24
FILE LAST UPDATED: 7 Dec 2005 (20051207/ED)


```
=> s l3
L4        1820 L3

=> s l4 and py<2002
      21804316 PY<2002
L5        1510 L4 AND PY<2002

=> s l5 and thin film
         550393 THIN
         917339 FILM
         146154 THIN FILM
                  (THIN(W)FILM)
L6          15 L5 AND THIN FILM

=> d 1-15 bib abs
```

L6 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:586582 CAPLUS
DN 137:331742
TI LPCVD of TaCN **thin film** for barrier layer in Cu interconnection
AU Hoshino, A.; Suzuki, T.; Hiiro, S.; Machida, H.; Ogura, A.; Ohshita, Y.
CS Technical + Development Department, TRI Chemical Laboratory Inc., Uenohara-machi, Kitatsuru-gun, Yamanashi, 409-0112, Japan
SO Advanced Metallization Conference 2000, Proceedings of the Conference, San Diego, CA, United States, Oct. 2-5 and University of Tokyo, Tokyo, Japan, Oct. 19-20, 2000 (**2000**), 403-408. Editor(s): Edelstein, Dan. Publisher: Materials Research Society, Warrendale, Pa.
CODEN: 69CXY4; ISBN: 1-55899-574-9
DT Conference
LA English
AB We synthesized a mixture of EtN:Ta(NEt2)3 and Ta(NEt2)4 as a precursor for Ta carbonitride CVD and investigated its properties. The vapor pressure is slightly low in comparison with TDMAT, and appropriate for CVD precursor (7 torr at 60°). This precursor is relatively safety because it is not pyrophoric in air. Moreover, purification is easy because it is liquid, so can be distilled Using this precursor, we deposited Ta carbonitride **thin film** by low-pressure CVD. Depositions were successfully carried out at 375-500° using H2 carrier gas. Below 400°, excellent step coverage was achieved, because the surface reaction was dominant. However, the film resistivity increased with decreasing substrate temperature To obtain low resistivity of film deposited at a lower temperature, we increased the amount of H2 gas injected during deposition. The resistivity decreased with increasing H2 gas flow rate, and injecting a large amount of H2 gas was found to be an effective method of obtaining both low resistivity and high quality step coverage. The concns. of C and N in the film were measured: C > 10%, N < 1%. Microstructural observation by TEM revealed that the deposited film was an amorphous phase. Finally, we prepared CVD-Cu/CVD-Ta carbonitride/Si structure film, and after thermal treatment (500° for 30 min.), Cu did not diffuse into the Si layer. Thus, this Ta carbonitride film had good barrier properties.
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:474597 CAPLUS

DN 133:97909
TI Formation of copper thin films by chemical vapor deposition
IN Kusumoto, Toshiro; Murata, Masaaki; Ichihashi, Motoko
PA ULVC Japan, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000195863	A2	20000714	JP 1998-370603	19981225 <--
	JP 3490317	B2	20040126		
	JP 2004040128	A2	20040205	JP 2003-306183	20030829
PRAI	JP 1998-370603	A3	19981225		

AB The processes involves depositing TiN or TaN thin films on substrates with barrier metal films by CVD, followed with depositing Cu thin films by CVD. The raw materials for Cu **thin film** deposition may be Cu(I)(HFAC)VTMS or Cu(II)(HFAC)2. The raw materials for TiN film may be Ti(NMe2)4, Ti(NEt2)4, and/or Ti(i-PrNMe)4 and the raw materials for TaN may be Ta(NMe2)5 and/or Ta:N(tert-butyl)(NMe2)3. The CVD-Cu film have excellent adhesion and smoothness.

L6 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:162397 CAPLUS
DN 132:229227
TI Application of in situ ellipsometry in the fabrication of **thin-film** optical coatings on semiconductors
AU Boudreau, Marcel G.; Wallace, Steven G.; Balcaitis, Ginutis; Murugkar, Sangeeta; Haugen, Harold K.; Mascher, Peter
CS Centre for Electrophotonic Materials and Devices and the Department of Engineering Physics, McMaster University, Hamilton, ON, L8S 4M1, Can.
SO Applied Optics (**2000**), 39(6), 1053-1058
CODEN: APOPAI; ISSN: 0003-6935
PB Optical Society of America
DT Journal
LA English
AB **Thin-film** interference filters, suitable for use on GaAs- and InP-based lasers, were fabricated using the electron-cyclotron resonance plasma-enhanced CVD technique. Multilayer film structures composed of Si oxynitride material were deposited at low temps. with an in situ rotating compensator ellipsometer for monitoring the index of refraction and thickness of the deposited layers. Individual layers with an index of refraction from 3.3 to 1.46 at 633 nm were produced with a run-to-run reproducibility of 0.005 and a thickness control of 10 Å. Several filter designs were implemented, including high-reflection filters, 1- and two-layer anitreflection filters, and narrow-band high-reflection filters. An accurate measurement of the filter optical properties during deposition is possible and controlled reflectance spectra can be obtained.
RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:524045 CAPLUS
DN 131:264911
TI Deposition of SiNx **thin film** using μ-SLAN surface wave plasma source
AU Xu, Ying-Yu; Ogishima, Takuya; Korzec, Dariusz; Nakanishi, Yoichiro; Hatanaka, Yoshinori
CS Graduate School of Electronic Science and Technology, Shizuoka University, Hamamatsu, 432-8011, Japan
SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (**1999**), 38(7B), 4538-4541
CODEN: JAPNDE; ISSN: 0021-4922
PB Japanese Journal of Applied Physics
DT Journal
LA English
AB A slot antenna (μ-SLAN) microwave surface wave plasma source was

developed for SiNx **thin film** preparation A μ-SLAN-produced Ar plasma d. up to 1011 cm-3 was achieved at an axial position of .apprx.43 cm from the ring cavity at a microwave power of 500 W and a chamber pressure of 0.5 torr. High-speed deposition of SiNx **thin film** was performed using the μ-SLAN-assisted remote plasma enhanced CVD method incorporating tris(dimethylamino)silane (TDMAS) as a monomer source. The film deposition rate increased rapidly up to 270 nm/min when some H was mixed in the N gas and increased from 0 to 1%. A further increase of H content, however, only slightly increased the film deposition rate. A high deposition rate of 280 nm/min was obtained when 15% H was mixed in the N gas, with the chamber pressure and microwave power at 1.5 torr and 500 W, resp.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:278128 CAPLUS
DN 131:36295
TI Molecular Self-Assembly of Dihydroxy-Terminated Molecules via Acid-Base Hydrolytic Chemistry on Silica Surfaces: Step-by-Step Multilayered **Thin Film** Construction
AU Yam, Chi Ming; Kakkar, Ashok K.
CS Department of Chemistry, McGill University, Montreal, QC, H3A 2K6, Can.
SO Langmuir (**1999**), 15(11), 3807-3815
CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB Acid-base hydrolytic chemical of aminosilanes with dihydroxy-terminated mols. containing rigid-rod type and alkyldiacetylene backbones, has been used to construct thin films on Si(100) (Si/SiO2) substrates. A layer-by-layer construction methodol. using Si(NEt2)4 and 2,4-hexadiyne-1,6-diol or 5,7-dodecadiyne-1,12-diol leads to multilayered supramol. structures. The quality of thin films in this step-by-step deposition process was monitored by contact angle goniometry, ellipsometry, Fourier transform IR-attenuated total reflection, X-ray photoelectron, and UV-vis absorption spectroscopies. The results indicate that diol-terminated chromophores form good quality, relatively closely packed thin films on silicon(silica) surfaces. Multilayered **thin film** construction enhances the stability of the thin films under varied conditions. The **thin film** assemblies were subjected to topochem. polymerization, and upon UV-vis exposure, the formation of a blue film was observed

RE.CNT 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:684851 CAPLUS
DN 129:285207
TI Bismuth amide compounds and compositions, and chemical vapor deposition method of forming bismuth-containing films therewith
IN Glassman, Timothy E.; Bhandari, Gautam; Baum, Thomas H.
PA Advanced Technology Materials, Inc., USA
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9843988	A1	19981008	WO 1998-US6127	19980326 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5902639	A	19990511	US 1997-828566	19970331 <--

	AU 9865901	A1	19981022	AU 1998-65901	19980326 <--
	EP 1030855	A1	20000830	EP 1998-912103	19980326 <--
	R: DE, FR, GB, IT, IE				
	JP 2001518142	T2	20011009	JP 1998-541861	19980326 <--
	US 6177135	B1	20010123	US 1998-208542	19981209 <--
PRAI	US 1997-828566	A	19970331		
	US 1997-69041P	P	19971210		
	WO 1998-US6127	W	19980326		

OS MARPAT 129:285207

AB A method is provided of forming a Bi-containing material layer on a substrate, comprising bubbler delivery or liquid delivery vaporization of a Bi amide source reagent to form a Bi containing source vapor, and introducing the Bi-containing source vapor to a CVD chamber to form the Bi-containing material layer on the substrate. The Bi amide source reagent may include a Bi amide compound BiL1xL2y(NR1R2)z wherein: Z is an integer of from 1 to 3; x + y + z = 3; each of L1 and L2 is independently selected from C1-C4 alkyl, C1-C4 alkoxide, β-diketonate, cyclic amido, cyclic trisalkoxoamine and C6-C10 aryl; and each of R1 and R2 is independently selected from C1-C8 alkyl, C1-C8 alkoxy, C6-C8 cycloalkyl, C6-C10 aryl, C1-C4 carboxyl, and SiR33, wherein each R3 is independently selected from H and C1-C4 alkyl. Bi-containing films of the invention may be used in the construction of spatial light modulator devices comprising a BSO (silicosillenite) layer deposited on a substrate, and an Al-Ta-oxide (ATO) insulator layer on the BSO layer.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:435463 CAPLUS

DN 129:142323

TI Optical coatings for improved semiconductor diode laser performance

AU Mascher, P.; Boudreau, M. G.; Wallace, S. G.; Murugkar, S.; Balcaitis, G.; Wettlaufer, Ch.; Haugen, H. K.

CS Centre for Electrophotonic Materials and Devices, Department of Engineering Physics, McMaster University, Hamilton, ON, Can.

SO Proceedings - Electrochemical Society (**1998**), 98-2(Proceedings of the Symposium on Light Emitting Devices for Optoelectronic Applications, 1998), 56-67
CODEN: PESODO; ISSN: 0161-6374

PB Electrochemical Society

DT Journal

LA English

AB In this paper, we describe the development of electron cyclotron resonance plasma enhanced CVD (ECR-PECVD) processes for the fabrication of silicon oxynitride based optical interference filters and passivation coatings on semiconductor laser facets. The use of in-situ ellipsometry as an effective tool for the monitoring and control of multilayer deposition processes is discussed, and it is shown that careful calibration of the ellipsometer is essential. Various corrections are applied, the most important of which takes into account the variation of the substrate temperature during the deposition of the **thin film**. Most of the SiNx films were fabricated from tris(dimethylamino)silane (TDAS, C6H19N3Si) in an Ar plasma. Taking advantage of the inert character of these films, they were applied as encapsulants of sulfur treated AlxGa1-xAs material. Silane (SiH4) was used for the deposition of films SiOxNy, and a-Si, providing a wider range of refractive indexes than TDAS, thus allowing the implementation of more sophisticated interference filter designs.

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:414065 CAPLUS

DN 129:130496

TI Syntheses and characterization of organoimido complexes of niobium(V); potential CVD precursors

AU Chiu, Hsin-Tien; Lin, Jyh-Cherng; Chuang, Shiow-Huey; Lee, Gene-Hsiang; Peng, Shie-Ming

CS Department of Applied Chemistry, National Chiao Tung University, Hsinchu,

30050, Taiwan
SO Journal of the Chinese Chemical Society (Taipei) (**1998**), 45(3), 355-360
CODEN: JCCTAC; ISSN: 0009-4536
PB Chinese Chemical Society
DT Journal
LA English
AB New Nb imido complexes (RN)Nb(NEt2)3 (R = Pr, Pri and But), potential precursors to grow Nb-containing thin films by CVD, were prepared by reacting the corresponding prepared (RN)NbCl3(py)2 complexes (R = Pr, Pri and But; py = pyridine) with LiNEt2 in hydrocarbon solvents. The structures of (RN)NbCl3(py)2 (R = Pri and But), determined by x-ray crystallog., are mononuclear with distorted octahedral geometries. For each complex, three chloride ligands are cis to the imido ligand and occupy meridional positions. One of two py ligands is cis to and the other is trans to the imido ligand. For (PriN)NbCl3(py)2, the Nb:NPri bond distance is 1.733(3) Å and ∠Nb:N-Pri is 178.0(3)°. Crystal data: monoclinic, space group P21/n, a 8.805(2), b 14.930(4), c 13.407(3) Å, β 93.37(2)°, Z = 4, dc = 1.565 g cm-3. For (ButN)NbCl3(py)2, the Nb:NBut bond distance is 1.734(4) Å and ∠Nb:N-But is 174.8(4)°. Crystal data: monoclinic, space group P21/c, a 9.609(1), b 13.591(6), c 14.615(2) Å, β 90.05(1)°, Z = 4, dc = 1.492 g cm-3.
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:221405 CAPLUS
DN 128:205187
TI Functionalized Siloxane-Linked Polymers for Second-Order Nonlinear Optics
AU Jiang, Hongwei; Kakkar, Ashok K.
CS Department of Chemistry, McGill University, Montreal, QC, H3A 2K6, Can.
SO Macromolecules (**1998**), 31(8), 2501-2508
CODEN: MAMOBX; ISSN: 0024-9297
PB American Chemical Society
DT Journal
LA English
AB A variety of polymers containing NLO-active chromophores covalently bound in the siloxane-linked backbones, [-R2Si(OSiR2)nO(NLO-chromophore)O-]n (R = CH3 or CH3/C6H4) and [-R2Si(OSiR2)nOR'O(NLO-chromophore)O-]n (R' = C6H4, C6H4C6H4), has been prepared Their solubility in common organic solvents and high thermal stability impart ease of **thin film** preparation and poling at high temps. These polymers exhibit good second-harmonic generation susceptibilities, and the temporal stabilities of the SHG signals are dependent on the polymer backbone and the mol. structures of the NLO chromophores. A detailed anal. of their phys. properties is reported.
RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:753758 CAPLUS
DN 128:102203
TI Coordination of alane and aluminum alkyls to the N-donor atom of side chain functionalized cyclopentadienyl iron and nickel complexes; structure of {[(C5H5)(C5H4CH2NMe2)]Fe}2AlH3
AU Nlate, Sylvain; Herdtweck, Eberhardt; Blumel, Janet; Fischer, Roland A.
CS Im Neuenheimer Feld, Anorganisch-chemisches Institut der Universitat Heidelberg, D-69120 Heidelberg, Germany
SO Journal of Organometallic Chemistry (**1997**), 545-546, 543-548
CODEN: JORCAI; ISSN: 0022-328X
PB Elsevier Science S.A.
DT Journal
LA English
AB The synthesis of Fe and Ni complexes with interaction of alane and trialkylaluminum compds. to the amino group is described. Treatment of [2-(N,N-dimethylamino)methyl]ferrocene, [(C5H5)(C5H4CH2NMe2)]Fe, with trimethylaminealane, H3AlNMe3, gives the Fe alane complex {[(C5H5)(C5H4CH2NMe2)]Fe}2AlH3 (2), with a five-coordinated Al center.

The structure of 2 was determined by single-crystal x-ray diffraction. The reaction of FeCl2 with two equivalent of {(C5H4CH2CH2NMe2)Li} gives [(C5H4CH2CH2NMe2)2Fe] (3). Complex 3 reacts quant. with two equivalent of trimethylaluminum to give [(C5H4CH2CH2NMe2)2Fe](AlMe3)2. Addition of trimethylaluminum or triethylaluminum to the Ni complex [(C5H4CH2CH2NMe2)2Ni] gives the paramagnetic Ni Al compds. [(C5H4CH2CH2NMe2)2Ni](AlMe3)2 and [(C5H4CH2CH2NMe2)2Ni](AlEt3)2, resp. These compds. were characterized by 1H, 13C and 27Al NMR, elemental anal. and mass spectroscopy. Studies to deposit intermetallic thin films using these compds. as bimetallic single source precursors revealed that Al was deposited, only.

L6 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:184102 CAPLUS
DN 126:179846
TI Manufacture of aluminum **thin film** as interlayer electric connection in electronic device
IN Sugai, Kazumi
PA Nippon Electric Co, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08339973	A2	19961224	JP 1995-168341	19950609 <--
	JP 3058053	B2	20000704		
PRAI	JP 1995-168341		19950609		

AB The title manufacture involves the following steps: (1) opening a contact-hole in an insulator film, (2) selectively forming an Al film only in the contact-hole by CVD using an Al-containing source gas, (3) exposing the whole surface to a metal element-containing gas, and (4) forming an Al film on the whole surface by the same CVD using an Al-containing source gas. In the step 3, metal atoms are adsorbed onto the insulator film. An Al film cannot be deposited on the bare insulator film in the step 2, but can be deposited on the metal-adsorbed insulator film in the step 4. The Al-containing source gas may be AlH3NMe3, AlH3NEt3, AlH3NMe2Et, AlH3N(C3H7)3, AlH3N(C4H9)3, NMe3AlH3NMe3, NEt3AlH3NEt3, NMe2EtAlH3NMe2Et, N(C3H7)3AlH3N(C3H7)3, or N(C4H9)3AlH3N(C4H9)3. The Al-cong. source gas may be R1nAlH3-n, R1oR2pAlH3-o-p, and/or R1R2R3Al (R1-3 = alkyl, olefin; 1≤ n ≤3; o, p ≤2; o + p ≤3; o, p ≥1) or AlMe3, AlEt3, AlMe2H, Al(CHMe2)3, Al(C3H7)3, Al(C4H9)3, AlEt2H, Al(CHMe2)2H. The metal contained in the gas for exposure may be Group IVA, VA, VIA, VIII, IB, IIB, and/or IIIB metal or may be Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Co, Ni, Pd, Pt, Cu, Au, Zn, In, and/or Ge and the gas may be TiCl4, Ti[(NMe2)]4, W(CO)6, AuMe2(C5H7O2), and/or EtCuOEt3.

L6 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:364386 CAPLUS
DN 125:143443
TI Simple acid-base hydrolytic chemistry approach to new materials for second-order non-linear optics
AU Jiang, Hongwei; Kakkar, Ashok K.; Lebuis, Anne-Marie; Zhou, Haitian; Wong, George K.
CS Dep. Chem., McGill Univ., Montreal, QC, H3A 2K6, Can.
SO Journal of Materials Chemistry (**1996**), 6(6), 1075-1077
CODEN: JMACEP; ISSN: 0959-9428
PB Royal Society of Chemistry
DT Journal
LA English
AB Acid-base hydrolysis of aminosilanes with NLO-active chromophores containing terminal acidic protons provides a facile synthetic route to robust dimeric, polymeric and molecularly self-assembled **thin-film** materials for second-order non-linear optics.

L6 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:212092 CAPLUS
DN 124:276075

TI Manufacture of silicon nitride-based electrically insulating film by plasma CVD
IN Kito, Hideyoshi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

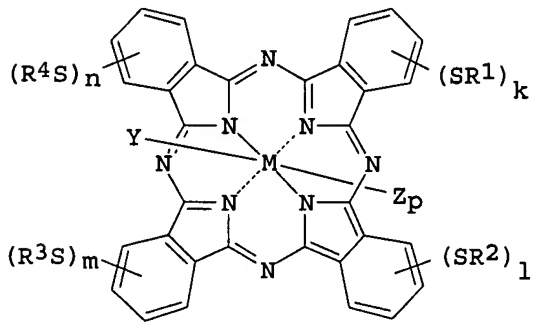
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08022986	A2	19960123	JP 1994-153855	19940705 <--
PRAI JP 1994-153855		19940705		

AB The title method involves successive formation of (1) a SiN-based or SiON-based underlayer elec. insulating **thin film** with relatively high amount of hydrocarbon groups from a reactant gas containing an organic Si compound with Si-N linkage and (2) a SiN-based overlayer elec. insulating film with relatively low amount of hydrocarbon groups on a substrate by CVD. The film is useful as a passivation film or an interlayer insulating film in semiconductor devices. The film was formed with improved step coverage and showed good water resistance.

L6 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1992:581912 CAPLUS
DN 117:181912
TI Write-once-type optical disk containing phthalocyanine dye
IN Sato, Takeshi
PA Toyo Inki Seizo K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 04047985	A2	19920218	JP 1990-156337	19900614 <--
PRAI JP 1990-156337		19900614		

GI



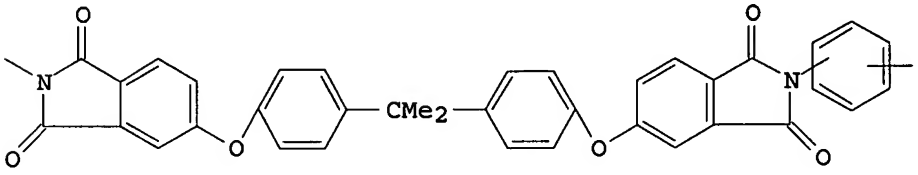
I

AB A compact disk for recording CD format signals comprises a 3-layer structure of a transparent substrate, a recording film layer, and a reflective film layer, wherein the recording film layer uses a **thin film** of a phthalocyanine dye I [M = Al, Ga, In, Si, Ge, Sn; R1-R4 = H, (cyclo)alkyl, aryl, heterocyclyl, acyl, poly ether, halo; Y = R5, OR6, SR7, OSiR8R9R10, OGeR11R12R13; Z = H, halo, OH, R14, OR15, SR16, OSiR17R18R19, OGeR20R21R22; R5-7, R14-16 = (cyclo)alkyl, aryl, heterocyclyl, acyl, polyether; R8-13, R17-22 = groups listed for R5, aryloxy, alkoxy, amino, H, OH, halo; k, l, m, n = 0-4; p = 0, 1]. The optical disk uses chemical and phys. stable I, and provides a CD and a CD-ROM with storage stability.

L6 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1986:629214 CAPLUS
DN 105:229214
TI Gas permselective composite membranes
IN Asako, Shigeru; Okita, Koichi; Toyooka, Shinichi; Yamada, Katsuya
PA Sumitomo Electric Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 61103521	A2	19860522	JP 1984-226476	19841026 <--
PRAI JP 1984-226476		19841026		

GI



I

AB Gas permselective composite membranes are prepared from film forming solns. of polyether polyimides having repeating units and containing optionally swelling agents, by contacting with gelling agents, removing solvents, drying, forming a plasma polymer **thin film** on the fine-structured side of the asym. porous film by glow discharging at ≤5 torr in the presence of polymerizable monomers, coating with solns. of polyorganosiloxanes optionally containing vulcanizing agents, and curing by drying or vulcanizing. Thus, a 25% solution of Ultem in N-methyl-2-pyrrolidone was spread on a glass plate, soaked in water to gel, washed, and dried at 110° for 1 h to give a 150-μ porous film which was glow-discharged in 1:1 mixture of Ar and (Me2SiH)2NH at 0.45 torr to form a plasma polymer **thin film**, then the 2-layered film was spray-coated with a 5% solution of SE6721 (silicone rubber) in Freon, and heated at 120° to form a 15-μ **thin film**. The 3-layered composite membrane showed He/N separation factor 288 vs. 12 for the porous film only.

=> s l5 and CVD
64201 CVD
L7 77 L5 AND CVD

=> s l7 not l6
L8 68 L7 NOT L6

=> d 1-68 bib abs

L8 ANSWER 1 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:707788 CAPLUS
DN 139:234012
TI Synthesis of metal oxide and oxynitride by low pressure **CVD** technique in semiconductor device fabrication
IN Senzaki, Yoshihide; Hochberg, Arthur Kenneth; Cuthill, Kirk Scott
PA Air Products and Chemicals, Inc., USA
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6616972	B1	20030909	US 1999-256933	19990224

	US 6319567	B1	20011120	US 1999-281616	19990330 <--
	TW 477826	B	20020301	TW 2000-89102878	20000218
	TW 527431	B	20030411	TW 2000-89103192	20000223
PRAI	US 1999-256933	A2	19990224		
	US 1999-281616	A	19990330		

OS MARPAT 139:234012

AB A method for producing a material selected from metal oxide, metal oxynitride, and mixts. thereof on a substrate comprises reacting a first reactant selected from (R1R2N)xM(=NR3)y, (R4R5N)xM[η2-R6N=C (R7)(R8)]y and mixts. thereof with an oxidant and up to 95 volume% of a source of nitrogen selected from ammonia, N2O, NO, NO2, alkyl amines, N2H2, alkyl hydrazine, N2, and mixts. thereof, to produce said material on said substrate, where R1, R2, R3, R4, R5, R6, R7 and R8 are individually C1-6 alkyl, aryl or hydrogen, M is Ta, Nb, W, or Mo, or mixts. thereof, whereby x = 3 and y = 1 when M is Ta or Nb, and y = x = 2 when M is W or Mo. The method is suitable in the manufacture of tantalum oxide, tantalum nitride, and tantalum oxynitride ultrathin films onto silicon wafers.

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:15966 CAPLUS

DN 138:81056

TI Liquid precursor mixtures for deposition of multicomponent metal containing materials

IN Senzaki, Yoshihide; Roberts, David Allen; Norman, John Anthony Thomas; Hochberg, Arthur Kenneth

PA Air Products and Chemicals, Inc., USA

SO U.S., 7 pp., Cont.-in-part of U.S. 6,238,734.
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6503561	B1	20030107	US 2000-546452	20000410
	US 6238734	B1	20010529	US 1999-350074	19990708 <--
	TW 467963	B	20011211	TW 2000-89113151	20000703 <--
	JP 2001081560	A2	20010327	JP 2000-212008	20000707 <--
	JP 3576934	B2	20041013		
	EP 1146141	A2	20011017	EP 2001-107777	20010404 <--
	EP 1146141	A3	20020116		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002146532	A2	20020522	JP 2001-111498	20010410
	JP 3677218	B2	20050727		
PRAI	US 1999-350074	A2	19990708		
	US 2000-546452	A	20000410		

AB The present invention is a composition for deposition of a mixed metal or metal compound layer, comprising a solventless mixture of at least 2 metal-ligand complex precursors, wherein the mixture is liquid at ambient conditions and the ligands are the same and are selected from the group consisting of alkyls, alkoxides, halides, hydrides, amides, imides, azides cyclopentadienyls, carbonyls, and their fluorine, oxygen and nitrogen substituted analogs. The present invention is also a process for deposition of a multiple metal or metal compound layer on a substrate of an electronic material, comprising: (a) providing a solventless mixture of ≥2 metal-ligand complex precursors which constitute a liquid at ambient conditions, wherein the ligands are the same and are selected from the group consisting of alkyls, alkoxides, halides, hydrides, amides, imides, azides, nitrates, cyclopentadienyls, carbonyls, pyrazoles, and their fluorine, oxygen and nitrogen substituted analogs; (b) delivering the solventless mixture by direct liquid injection to a flash vaporization zone to vaporize the solventless mixture; (c) contacting the substrate under deposition conditions with a resulting vapor of the solventless mixture; and (d) depositing a multiple metal or metal compound layer on the substrate from the solventless mixture

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:842677 CAPLUS
DN 135:379011
TI Synthesis of tantalum nitride by **CVD** using appropriate liquid precursors
IN Senzaki, Yoshihide; Hochberg, Arthur Kenneth; Norman, John Anthony Thomas
PA Air Products and Chemicals, Inc., USA
SO U.S., 8 pp., Cont.-in-part of U. S. Ser. No. 256,933.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6319567	B1	20011120	US 1999-281616	19990330 <--
	US 6616972	B1	20030909	US 1999-256933	19990224
	TW 527431	B	20030411	TW 2000-89103192	20000223
PRAI	US 1999-256933	A2	19990224		
	US 1999-281616	A	19990330		

OS MARPAT 135:379011
AB Disclosed is a method for producing a Ta nitride layer on a substrate comprising; directly injecting a liquid mixture of (R1R2N)3Ta(=NR3) and (R4R5N)3Ta[η2-R6=C(R7)(R8)] into a dispersing zone followed by delivering the dispersed mixture into a reactor containing the substrate at elevated temperature and reacting the mixture with a source of nitrogen selected from the group consisting of NH3, alkyl amines, N2H2, alkyl hydrazine, N2 and mixts. thereof, to produce the Ta nitride layer on the substrate, where R1, R2, R3, R4, R5, R6, R7 and R8 are individually C1-6 alkyl, aryl or hydrogen.
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:780760 CAPLUS
DN 135:332896
TI Purification of organometallic compounds by passage through catalyst bed containing supported palladium and hydrogenated getter alloys
IN Vergani, Giorgio; Succi, Marco
PA SAES Getters S.p.A., Italy
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001078869	A1	20011025	WO 2001-IT186	20010413 <--
	WO 2001078869	C2	20020718		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	IT 1318474	B1	20030825	IT 2000-MI881	20000419
	IT 1318480	B1	20030825	IT 2000-MI891	20000420
PRAI	IT 2000-MI881	A	20000419		
	IT 2000-MI891	A	20000420		

AB Organometallic compds. or heteroat. organic compds. are purified, for removal of oxygen, water and compds. derived from reaction of these compds. with oxygen or water, by passage of the compds. through a catalyst bed containing 0.4-5 weight% Pd metal deposited on a porous support (especially Al2O3), and, optionally, a hydrogenated getter alloy and a mixture of Fe and Mn on a zeolite support. The purification is carried on the compound of interest, in the form of the pure compound, a vapor, or entrained in a carrier gas, at

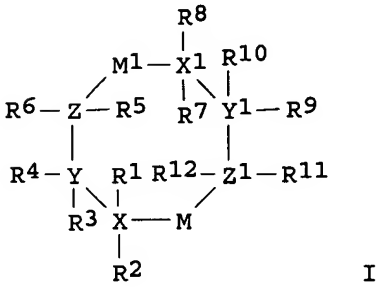
between -20° and 100° (preferably between room temperature and 50°) and an absolute pressure of 1-10 bars. The purification method is especially useful for purifying organometallic compds. and heteroat. organic compds. to a purity suitable for chemical vapor depositions or semiconductor fabrication.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:747167 CAPLUS
DN 135:273081
TI Preparation of metal volatile precursors for deposition of metals and metal-containing films
IN Morman, John Anthony Thomas; Roberts, David Allen; Farnia, Morteza
PA Air Products and Chemicals, Inc., USA
SO Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1142894	A2	20011010	EP 2001-108053	20010329 <--
EP 1142894	A3	20030423		
EP 1142894	B1	20050112		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2002013487	A1	20020131	US 2001-791409	20010222
TW 490502	B	20020611	TW 2001-90107555	20010329
AT 286902	E	20050115	AT 2001-108053	20010329
JP 2002069088	A2	20020308	JP 2001-104544	20010403
JP 3593051	B2	20041124		
HK 1039944	A1	20050805	HK 2002-101237	20020220
PRAI US 2000-194285P	P	20000403		
US 2001-791409	A	20010222		

OS CASREACT 135:273081; MARPAT 135:273081
GI



I

AB This invention is directed to a group of novel homologous eight membered ring compds. I having a metal, such as copper, reversibly bound in the ring and containing carbon, nitrogen, silicon and/or other metals. A structural representation of the compds. I (M, M' = Cu, Ag, Au, Ir; X, X' = N, O; Y, Y' = Si, C, Sn, Ge, B; Z, Z' = C, N, O; substituents represented by R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12 will vary depending on the ring atom to which they are attached). This invention is also directed to depositing metal and metal-containing films on a substrate, under ALD or **CVD** conditions, using the above novel compds. as precursors. Thus, reaction of dimethylaminochloromethyldimethylsilane with Mg in THF followed by treatment with cuprous chloride gave [-CuNMe2SiMe2CH2CuNMe2SiMe2CH2-].

L8 ANSWER 6 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:524158 CAPLUS
DN 135:266235
TI Reactions of Tetrakis(dimethylamide)-Titanium, -Zirconium and -Hafnium

with Silanes: Synthesis of Unusual Amide Hydride Complexes and Mechanistic Studies of Titanium-Silicon-Nitride (Ti-Si-N) Formation
AU Liu, Xiaozhan; Wu, Zhongzhi; Cai, Hu; Yang, Yihui; Chen, Tianniu; Vallet, Catherine E.; Zuhr, Ray A.; Beach, David B.; Peng, Zhi-Hui; Wu, Yun-Dong; Concolino, Thomas E.; Rheingold, Arnold L.; Xue, Ziling
CS Department of Chemistry, University of Tennessee, Knoxville, TN, 37996, USA
SO Journal of the American Chemical Society (2001), 123(33), 8011-8021
CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
OS CASREACT 135:266235
AB M(NMe2)4 (M = Ti, Zr, Hf) react with H2SiR'Ph (R' = H, Me, Ph) to yield H2, aminosilanes, and black solids. Unusual amide hydride complexes [(Me2N)3M(μ-H)(μ-NMe2)2]2M (M = Zr, 1; Hf, 2) are intermediates and characterized by single-crystal x-ray diffraction. [(Me2N)3M(μ-D)(μ-NMe2)2]2M (1-d2, 2-d2) were prepared through reactions of M(NMe2)4 with D2SiPh2. Reactions of (Me2N)3ZrSi(SiMe3)3 (5) with H2SiR'Ph gave aminosilanes and (Me2N)2Zr(H)Si(SiMe3)3 (6). These reactions are reversible through unusual equilibrium such as (Me2N)3ZrSi(SiMe3)3 (5) + H2SiPh2 .dblarw. (Me2N)2Zr(H)Si(SiMe3)3 (6) + HSi(NMe2)Ph2. The deuteride ligand in (Me2N)2Zr(D)Si(SiMe3)3 (6-d1) undergoes H-D exchange with H2SiR'Ph (R' = Me, H) to give 6 and HDSiR'Ph. The reaction of Ti(NMe2)4 with SiH4 in **CVD** at 450° yielded thin Ti-Si-N ternary films containing TiN and Si3N4. Ti(NMe2)4 reacts with SiH4 at 23° to give H2, HSi(NMe2)3, and a black solid. HNMe2 was not detected in this reaction. The reaction mixture, upon heating, gave TiN and Si3N4 powders. Analyses and reactivities of the black solid revealed that it contained -H and unreacted -NMe2 ligands but no Si-containing ligand. Ab initio quantum chemical calcns. of the reactions of Ti(NR2)4 (R = Me, H) with SiH4 indicated that the formation of aminosilanes and HTi(NR2)3 was favored. These calcns. also showed that HTi(NH2)3 (3b) reacted with SiH4 or H3Si-NH2 in the following step to give H2Ti(NH2)2 (4b) and aminosilanes. The results in the current studies indicated that the role of SiH4 in its reaction with Ti(NMe2)4 was mainly to remove amide ligands as HSi(NMe2)3. The removal of amide ligands is incomplete, and the reaction thus yielded "=Ti(H)(NMe2)" as the black solid. Subsequent heating of the black solid and HSi(NMe2)3 may then yield TiN and Si3N4, resp., as the Ti-Si-N materials.
RE.CNT 122 THERE ARE 122 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:375108 CAPLUS
DN 135:157954
TI Vapor pressures of precursors for the **CVD** of titanium nitride and tin oxide
AU Van Mol, A. M. B.; Driessen, J. P. A. M.; Linden, J. L.; De Croon, M. H. J. M.; Spee, C. I. M. A.; Schouten, J. C.
CS Div. Mater. Res. Technol., TNO-TPD, Eindhoven, NL-5600 AN, Neth.
SO Chemical Vapor Deposition (2001), 7(3), 101-104 Published in: Adv. Mater. (Weinheim, Ger.), 13(9)
CODEN: CVDEFX; ISSN: 0948-1907
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB The vapor pressure curves for **CVD** precursors for TiN coatings and SnO2 layers are presented. The precursors were Ti(NMe2)4 and Me3CTi(NMe2)3 for TiN and (C4H9)SnCl3, SnCl4, MeSnCl3, Me2SnCl2, Me3SnCl, and SnMe4 for the SnO2 system. No significant decomposition was observed for 5 of the Sn precursors. Ti(NMe2)4 and Me3CTi(NMe2)3 had enthalpies of evaporation of 63 ± 6 J/mol and 56 ± 5 J/mol, resp. The values measured were in good agreement with previously reported values for the compds.
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 8 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:293644 CAPLUS
DN 134:319599
TI Method for fabricating gate oxide layer for a semiconductor device
IN Huang, Kuo-Tai; Huang, Michael W. C.; Yew, Tri-Rung
PA United Microelectronics Corp., Taiwan
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6221712	B1	20010424	US 1999-385805	19990830 <--
PRAI US 1999-385805		19990830		

AB A method is provided for fabricating a gate structure. The method involves providing a substrate, followed by forming a nitride region on a surface of the substrate. With a Ta-based organic compound and a Ti-based organic compound serving as precursors, an metalorg. **CVD** (MOCVD) is performed, so that a Ta2-xTixO5 dielec. layer is formed on the substrate. A barrier layer, a conducting layer, and an anti-reflection (AR) layer are then formed in sequence on the Ta2-xTixO5 dielec. layer. Subsequently, the AR layer, the conducting layer, the barrier layer, and the Ta2-xTixO5 dielec. layer are defined to form a gate structure on the substrate of the nitride region. The Ta-based organic compound in this case may include a Ta-alkoxide compound, whereas the Ti-based organic compound may include a Ti-alkoxide compound or a Ti-amide compound

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 9 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:24341 CAPLUS
DN 134:139512
TI The pentacoordinate titanium complex [TiCl2(NMe2)2(HNMe2)]
AU Kirschbaum, Kristin; Conrad, Olaf; Giolando, Dean M.
CS Department of Chemistry, University of Toledo, Toledo, OH, 43606, USA
SO Acta Crystallographica, Section C: Crystal Structure Communications (**2000**), C56(12), e541
CODEN: ACSCEE; ISSN: 0108-2701
PB Munksgaard International Publishers Ltd.
DT Journal
LA English
AB Amido complexes of Ti are useful reagents in a variety of syntheses and as precursors for **CVD** of TiN. The title compound, dichlorobis(dimethylamido)(dimethylamine)titanium(IV), [TiCl2(C2H6N)2(C2H7N)], crystallizes with one mol. in the asym. unit. The neutral complex shows an unusual 5-fold coordination of the Ti center with a distorted trigonal-bipyramidal geometry and the dimethylamine mol. occupying an axial position. Crystallog. data are given.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 10 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:7542 CAPLUS
DN 134:78989
TI Chemical vapor depositions process for depositing titanium silicide films from an organometallic compound
IN Akram, Salman
PA Micron Technology, Inc., USA
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6168837	B1	20010102	US 1998-148371	19980904 <--
US 6500501	B1	20021231	US 2000-652406	20000831
US 2003072892	A1	20030417	US 2002-300327	20021119
US 6696109	B2	20040224		

PRAI US 1998-148371 A1 19980904
US 2000-652406 A1 20000831
AB A process for depositing Ti suicide films via **CVD** takes place in a deposition chamber that was evacuated to less than atmospheric pressure and uses, as reactants, the organometallic compound tertiary-butyltris(dimethylamido)titanium (TBTDMAT) and a Si-containing compound such as silane. The deposition temperature, which is dependent on the N source, is within a range of 400 to 800°. The low end of the temperature range uses a plasma-enhanced deposition process, while the higher end of the temperature range relies on thermal decomposition to initiate the reaction. The films deposited using the process have a sheet resistance of .apprx.2 to 10 Ω per square and contain <5% C impurities and <5% O impurities by weight Ti silicide films incorporating various other compds. may be deposited using either of the heretofore described embodiments of the process by adding other precursors to the TBTDMAT and the Si-containing compds. For example, by adding N-containing compds. such as amines, NH3, and hydrazines to the Si and Ti precursors and using the same reaction parameters, a film TiSixN1-x can be deposited. Addnl., by adding W-containing organometallic compds. such as bis(2,4-dimethylpentadienyl)tungsten or W halide compds. such as WF6 or WCl6 to the Si and Ti precursors, a Ti silicide film TiSiW can be deposited. The Ti silicide films can be used to fabricate integrated circuits.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 11 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:790762 CAPLUS
DN 133:342806
TI Liquid precursors for **CVD** formation of alkali metal compounds such as oxides
IN Gordon, Roy G.; Broomhall-dillard, Randy N. R.
PA President and Fellows of Harvard College, USA
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000067300	A1	20001109	WO 2000-US11415	20000428 <--

W: CA, JP, KR, US
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRAI US 1999-131527P A2 19990429
AB Volatile liquid precursors are provided for the formation of alkali metal-containing materials. The liquid precursors comprise alkali metal amides. For example, a volatile liquid compound was formed by reacting Bu Li with bis(ethyldimethylsilyl)amine. Films containing alkali metals are deposited from vapors of the precursor liqs. and, optionally, O or other sources of O. This process may be used to deposit Li niobate films having nonlinear optical properties. The liquid precursors may also be used for spray coating, spin coating and sol-gel deposition of materials containing alkali metals.
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 12 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:784932 CAPLUS
DN 134:64030
TI Metalorganic **CVD** of tantalum oxide from tert-butylimidotris(diethylamido)tantalum and oxygen
AU Chiu, Hsin-Tien; Wang, Chun-Nan; Chuang, Shiow-Huey
CS Department of Applied Chemistry, National Chiao Tung University, Hsinchu, 30050, Taiwan
SO Chemical Vapor Deposition (**2000**), 6(5), 223-225 Published in: Adv. Mater. (Weinheim, Ger.), 12(19)
CODEN: CVDEFX; ISSN: 0948-1907
PB Wiley-VCH Verlag GmbH
DT Journal

LA English
AB The results are reported of preliminary exploration of metalorg. **CVD** of tantalum oxide from tert-butylimidotris(diethylamido)tantal um and oxygen. Tert-butylimidotris(diethylamido)tantalum, (TBTDET) with a higher vapor pressure than Ta(OEt)5, and other tantalum alkoxides, can be used as a precursor to grow tantalum oxide thin films by **CVD** for device application. Using this precursor, a Ta2O5 film with a thickness of 180 nm had a leakage c.d. below 1 + 10 -8 A/cm2 for an elec. field strength of 2 MV/cm, and a breakdown voltage of 2 MV/cm. The dielec. constant was 22.
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 13 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:686929 CAPLUS
DN 133:275136
TI **CVD** of porous silica films with small dielectric constant
IN Uchida, Takahiro
PA Foundation for Scientific Technology Promotion, Japan; Japan Science and Technology Agency
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000269208	A2	20000929	JP 1999-74442	19990318 <--
JP 3633821	B2	20050330		
PRAI JP 1999-74442		19990318		

AB Si sources containing cyanate and alkyl groups (other than Me) and tertiary amines are reacted to deposit Si-type insulator films on substrates, and the alkyl groups are removed from the films.

L8 ANSWER 14 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:609496 CAPLUS
DN 133:289409
TI MOCVD of high-K dielectrics and conductive metal nitride thin films
AU Senzaki, Yoshihide; Hamilton, Richard F.; Reid, Kimberly G.; Hobbs, Christopher C.; Hegde, Rama I.; Tiner, Mike J.
CS Schumacher, Carlsbad, CA, 92009, USA
SO Materials Research Society Symposium Proceedings (**2000**), 606(Chemical Processing of Dielectrics, Insulators and Electronic Ceramics), 13-22
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB A known liquid mixture of [(CH3CH2)2N]3Ta=NCH2CH3 and [(CH3CH2)2N]3Ta[η2-CH3CH2N=CH(CH3)] was studied to deposit Ta2O5 and TaN thin films by **CVD**. Films were deposited at temps. below 400°C using oxygen for oxide and ammonia for nitride, resp. XRD anal. revealed that as-deposited amorphous tantalum oxide films were converted to hexagonal Ta2O5 after annealing under oxygen, while tantalum nitride thin films contained cubic TaN as deposited. The low viscosity, thermal stability, and sufficient volatility of the precursor allows direct liquid injection to deliver the precursor, which results in high deposition rate and uniformity of the deposited films.
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 15 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:198326 CAPLUS
DN 132:238802
TI Chemical vapor deposition process and device manufactured by the method
IN Machida, Hideaki; Higuchi, Noboru; Kokubu, Hiroshi; Funakubo, Hiroshi
PA Tori Chemical Kenkyusho K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000087240	A2	20000328	JP 1998-256867	19980910 <--
PRAI	JP 1998-256867		19980910		

AB The method involves using an organic metal compound having free groups and performing vapor transport using a carrier gas containing a compound having the groups or a compound having the groups as a carrier gas. A Ca-, Sr-, Ba-, Pb-, Ta-, Cu-, Ti-, Zr-, and Al-based film are manufactured by the method. Stable vapor transport is performed in the **CVD** process with decomposition prevention of the compound

L8 ANSWER 16 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:151738 CAPLUS
DN 132:211509
TI Synthesis of silicon carbide-silicon nitride composite film by RF plasma **CVD**
AU Li, X. G.; Nakata, Y.; Nagai, H.; Suzuki, M.; Okutani, T.
CS Dep. Mater. Sci. Technol., Iwate Univ., 4-3-5, Ueda, Morioka, 020-8551, Japan
SO Material Technology (Tokyo) (**2000**), 18(1), 28-34
CODEN: MTECFQ
PB Zairyo Gijutsu Kenkyu Kyokai
DT Journal
LA English
AB Films were synthesized from SiC5H15N and SiC5H16N2 by radio-frequency (RF) plasma chemical vapor deposition (**CVD**) between 298 and 773 K, and then were investigated by Fourier transform IR absorption spectroscopy, x-ray diffraction and scanning electron microscope. Polymer films with many defects such as pin holes and cracks were obtained when the substrate temperature is below 473 K and amorphous films of Si-C-N composite ceramic with fewer defects were obtained above 673 K.

L8 ANSWER 17 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:79332 CAPLUS
DN 132:130858
TI Manufacture of semiconductor device involving forming titanium nitride as barrier metal layer in electric circuit
IN Ohshita, Yoshio
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000036473	A2	20000202	JP 1998-202321	19980716 <--
	JP 3248489	B2	20020121		
PRAI	JP 1998-202321		19980716		

AB The device is manufactured from a substrate having contact holes or trenches by forming a TiN film on the surface by **CVD** using organometallic raw material gas containing Ti and halogens, patterning the TiN film, and forming a circuit made of an elec. conductor on the TiN film pattern. The TiN film shows improvement of gap-filling property without affecting the quality of the film, e.g., stable sp. resistivity, etc.

L8 ANSWER 18 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:277821 CAPLUS
DN 130:330706
TI PACVD-derived thin films in the system Si-B-C-N
AU Hegemann, Dirk; Riedel, Ralf; Oehr, Christian
CS Fachgebiet Disperse Feststoffe, Fachbereich Materialwissenschaft, Tech. Univ. Darmstadt, Darmstadt, D-64287, Germany
SO Chemical Vapor Deposition (**1999**), 5(2), 61-65 Published in: Adv. Mater. (Weinheim, Ger.), 11(5)
CODEN: CVDEFX; ISSN: 0948-1907

PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB Thin films of SiBCN and BCN were prepared at low substrate temps. (250°) by plasma-assisted **CVD** (PACVD) using a radio frequency plasma (13.56 MHz) with Ar or N2 as carrier gases and tris(dimethylamino)silylamino-bis(dimethylamino)borane (TDADB) as a single-source precursor. They were characterized by FTIR spectroscopy, XPS, Auger spectroscopy, XRD, and measurements of the mech. properties. With Ar as a carrier gas, a composition of SiBC2.8N was found with a d. of 2.3 g/cm3 and high hardness values of ≤22 GPa. The films were comparable to BCN films deposited under similar conditions. For N2 as a carrier gas, weaker SiBCN networks with a lower hardness were achieved. Most of the Si atoms are bonded to N and C atoms; the C content in the films was attributed to sp2/sp3 hybridized C-C and C-N bonds, while B is predominantly bonded to N with sp2/sp3 hybridization. Some H also remained in the films as Si-H, N-H, and C-H bonds.
RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 19 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:139810 CAPLUS
DN 130:183429
TI Composite material and its manufacture
IN Breme, Frank; Guther, Volker; Van Osten, Karl-Uwe
PA GfE Metalle und Materialien G.m.b.H., Germany
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 897997	A1	19990224	EP 1998-115821	19980821 <--
	EP 897997	B1	20030226		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	DE 19736449	A1	19990225	DE 1997-19736449	19970821 <--
	JP 11229146	A2	19990824	JP 1998-251949	19980820 <--
	US 6057031	A	20000502	US 1998-137815	19980821 <--
	AT 233328	E	20030315	AT 1998-115821	19980821
PRAI	DE 1997-19736449	A	19970821		

AB The composites comprise a plastic substrate and a deposited continuous layer (thickness <2 μm) of a ductile metal-containing compound MaObCxNyBz (M = Ti, Ta, Nb, Zr, Hf; a = 0.025-0.9; b = 0.025-0.7; x = 0.2-0.9; y, z = 0-0.7; a + b + x + y + z = 1) such that the M concentration (a) increases continuously from the substrate interface (where a is ≈0) to the surface of the deposited layer, and are prepared by activating the plastic surface, vapor-depositing an appropriate metal compound at ≤100°, and treating with a plasma at <50 millibars. The products find use in medical technol. as prostheses, etc. Thus, poly(ethylene terephthalate) was surface-treated with a 50-W inductive plasma (13.56 MHz) for 3 min at .apprx.1 millibar, heated to .apprx.100°, then treated with Ti(NMe2)4 vapors in a H carrier gas stream at 5°, and exposed to a low-pressure plasma. The coating adhered to the substrate with peel strength >6 N/mm2 and showed conductivity 2.1 (Ω-cm)-1 initially, which decreased to 0.18 (Ω-cm)-1 after 3 days exposure to air.
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 20 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1999:51004 CAPLUS
DN 130:175463
TI Silicon nitride film growth by remote plasma **CVD** using tris(dimethylamino)silane
AU Aoki, Toru; Ogishima, Takuya; Wrobel, Aleksander M.; Nakanishi, Yoichiro; Hatanaka, Yoshinori
CS Graduate School of Electronic Science and Technology, Shizuoka University,

Hamamatsu, 432-8011, Japan
SO Vacuum (**1998**), 51(4), 747-750
CODEN: VACUAV; ISSN: 0042-207X
PB Elsevier Science Ltd.
DT Journal
LA English
AB Si nitride (SiNx) films were prepared using an organosilicon monomer, tris(dimethylamino)silane ((Me2N)3SiH: TDMAS) by remote plasma **CVD** . Plasma was generated by a mixture of H and N gases while the monomer was introduced into the downstream. Deposition of SiNx films were initiated by H radicals since no film deposition was observed in the absence of H radicals. The deposited films were contaminated with a small amount of C atoms for the substrate temperature over 400°. It is proposed that at the initial step, Si-N or N-C bonds of the monomer are broken by H radicals. Also, N atoms in the films are assumed to originate from the plasma.
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 21 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:672429 CAPLUS
DN 129:297190
TI **CVD** of nitride layers in semiconductor device fabrication
IN Jain, Ajay; Weitzman, Elizabeth
PA Motorola, Inc., USA
SO Eur. Pat. Appl., 8 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 869544	A2	19981007	EP 1998-104865	19980318 <--
EP 869544	A3	20000202		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, MC, PT, IE, SI, LT, LV, FI, RO				
US 6153519	A	20001128	US 1997-829752	19970331 <--
CN 1195188	A	19981007	CN 1998-105911	19980330 <--
JP 10284440	A2	19981023	JP 1998-105683	19980331 <--
US 6376371	B1	20020423	US 2000-570862	20000512
PRAI US 1997-829752	A	19970331		

OS MARPAT 129:297190
AB Refractory metal nitride and refractory metal Si nitride layers can be formed by metalorg. chemical vapor deposition. More specifically, TaN can be formed by **CVD** using ethyltris(diethylamido)tantalum (ETDET) and NH3. By the inclusion of SiH4, a TaSiN layer can also be formed. Both of these layers can be formed at wafer temps. .ltorsim.400° with relatively small amts. of C within the film. The invention can be used to form TaN or TaSiN that is relatively conformal and has reasonably good diffusion barrier properties.

L8 ANSWER 22 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:200123 CAPLUS
DN 128:278249
TI Titanium(IV) azido and imido complexes as potential precursors to titanium nitride
AU Carmalt, Claire J.; Whaley, Sandra R.; Lall, Pindy S.; Cowley, Alan H.; Jones, Richard A.; McBurnett, Brain G.; Ekerdt, John G.
CS Dep. Chem. Biochem., Univ. Texas Austin, Austin, TX, 78712, USA
SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (**1998**), (4), 553-557
CODEN: JCDTBI; ISSN: 0300-9246
PB Royal Society of Chemistry
DT Journal
LA English
AB Synthetic and structural studies were performed for two imido complexes of titanium(IV). The reaction between [{Ti(NBut)Cl2(NH2But)2}3] and 6 equiv of Me3SiN3 at room temperature in the presence of pyridine resulted in the substitution of only one chloride per titanium atom and formation of

dimeric [{Ti(NBut)Cl(N3)(py)2}2] (8, py = pyridine). An alternative approach to such complexes, which involved the reaction between [Ti(NMe2)2(N3)2(py)2] and 1 equiv of CyNH2 at room temperature, resulted in the dimeric bis(azide) complex [{Ti(NCy)(N3)2(py)2}2] (11, Cy = cyclohexyl). The two new complexes were characterized by x-ray crystallog. (8·2CH2Cl2: rhombohedral, space group R.hivin.3, R1 = 0.0765; 11·CH2Cl2: monoclinic, space group P21/c, R1 = 0.0500). The solid state structure of each comprises dimeric units in which the two titanium atoms are bridged by a pair of azide ligands. A gas-phase pyrolysis study was conducted on [Ti(NMe2)2(N3)2(py)2] and preliminary **CVD** expts. on the two new complexes revealed that they are not effective titanium nitride precursors.

RE.CNT 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 23 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:166108 CAPLUS
DN 128:264114
TI Deposition of SiBCN films from a monomeric borosilazane
AU Haltrich, M.; Wahl, G.; Arndt, J.; Suchentrunk, R.
CS Daimler-Benz AG, Forschung Technik, Munchen, 800465, Germany
SO Proceedings - Electrochemical Society (**1997**), 97-25(Chemical Vapor Deposition), 1223-1229
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB The vaporation and deposition process of the monomeric borosilazane tri(dimethylamino)silylaminodi(dimethylamino)boran was studied with the purpose to deposit SiBCN films from a single source precursor. The studies were carried out in a computerized microbalance system in Ar atmospheric at a total pressure of 1000 Pa. The evaporation temps. were between Tev = 338 K and Tev = 378 K. The temps. of the substrate ranged between Tdep = 893 K and Tdep = 1023 K. The activation energy for the evaporation is 52 kJ/mol. The deposition kinetics can be described by the Langmuir-Hinshelwood mechanism. The films were characterized by SEM, XRD and AES. A typical elementary composition of the x-ray amorphous films was 20.2 at-% Si, .simeq. 21.9 at-% B, .simeq. 22.1 at-% N, .simeq. 33.0 at-% C and .simeq. 2.6 atomic% O.

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 24 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:166094 CAPLUS
DN 128:264109
TI Preparation of high quality SiNx films by remote plasma **CVD** using TDMAS
AU Aoki, Toru; Ogishima, Takuya; Nakanishi, Yoichiro; Hatanaka, Yoshinori; Wrobel, Aleksander M.
CS Grad. Sch. Electronic Sci. Technol., Hamamatsu, 432, Japan
SO Proceedings - Electrochemical Society (**1997**), 97-25(Chemical Vapor Deposition), 1207-1214
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB **CVD** of Si nitride films were performed using an organosilicon monomer, (Me2N)3SiH (TDMAS), in a remote plasma environment. Plasma was generated by a gas mixture of H and N while the monomer was introduced in to the downstream. Deposition of SiN films were initiated by H and N radicals generated in the plasma. In the absence of H radicals, no film deposition was observed Increase of substrate temperature over 300° lowers the C contamination in the film. Probably at the initial step, Si-N or Si-H bonds of the monomer are broken by H radicals. Also, N atoms in the films are assumed to originate from the plasma.

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 25 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:92059 CAPLUS
DN 128:170193
TI Plasma-enhanced MOCVD of wear resistant Ti(C,N) layers on tool steel
AU Driessen, J. P. A. M.; Kuypers, A. D.; Schoonman, J.
CS Department of Materials Chemistry & Coatings, TNO Institute of Applied Physics, Eindhoven, 5612 AZ, Neth.
SO Materials, Functionality & Design, Proceedings of the European Conference on Advanced Materials and Processes and Applications, 5th, Maastricht, Neth., Apr. 21-23, 1997 (**1997**), Volume 3, 3/13-3/16. Editor(s): Sarton, L. A. J. L.; Zeedijk, H. B. Publisher: Netherlands Society for Materials Science, Zwijndrecht, Neth.
CODEN: 65PUA8
DT Conference
LA English
AB The investigation of low-temperature plasma-enhanced metal organic (MO) **CVD** of Ti(C,N), based on alternative precursors, is described. Metal organic compds., Ti(NMe2)4, Ti(NEt2)4 and tert-BuTi(NMe2)3, were used in combination with N2, H2 and Ar in a reactor suitable for the coating of 3-D bodies. The reactants were activated by a bipolar pulsed d.c. plasma 0-1000 V which provided the advantages of stability, thin boundary layer surrounding the substrate and efficient up-scaling possibilities. Addnl. heating of the substrate and reactor volume allowed deposition temps. between 100 and 550°. Nano-indentation measurements revealed Vickers hardness values ≤1633. Under identical process conditions, similar growth rates of Ti(C,N) were obtained by using either Ti(NMe2)4 or Ti(NEt2)4, while using tert-BuTi(NMe2)3 resulted in much higher growth-rates but relatively low hardness values. High growth-rates of Ti(C,N) appeared to enhance C incorporation in the layers, at the expense of N. Depositions using bipolar plasma pulses resulted in bronze colored adherent layers similar to Ti(C,N).
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 26 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:60674 CAPLUS
DN 128:183588
TI Plasma enhanced deposition of titanium aluminum composite films using organometallic aluminum precursors
AU Taschner, Ch.; Klosowski, J.; Leonhardt, A.; Dumichen, U.
CS Postfach 270016, Institut fur Festkorper- und Werkstofforschung Dresden, 01171, Dresden, Germany
SO Surface and Coatings Technology (**1998**), 98(1-3), 925-933
CODEN: SCTEEJ; ISSN: 0257-8972
PB Elsevier Science S.A.
DT Journal
LA English
AB Thin films of aluminum composites with or without addnl. titanium have been deposited by plasma-enhanced **CVD** (pulsed d.c. discharge) at a deposition temperature of 770 K (500 °C) using various organometallic aluminum starting compds. The composition and the structure of the layers are determined by gas phase composition and plasma power d. Results concerning microhardness, adherence and coating structure are reported. AlN, AlON, and (Ti,Al)(O,N) coatings could be successfully prepared under the described conditions, but we have failed in depositing crystalline aluminum oxide layers.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 27 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:616989 CAPLUS
DN 127:271322
TI Fabricating a tantalum nitride diffusion barrier for copper metalization
IN Sun, Shi-chung; Chiu, Hien-tien; Tsai, Ming-hsing
PA United Microelectronics Corp., Taiwan
SO U.S., 10 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	US 5668054	A	19970916	US 1996-584749	19960111 <--
PRAI	US 1996-584749		19960111		

AB A process for fabricating a TaN diffusion barrier for the advanced Cu metalization of semiconductor devices is disclosed. The process comprises preparing a semiconductor device fabricated over the surface of a Si substrate having a component with a fabricated contact opening. Before the formation of the Cu contact by deposition, the process performs a TaN low-pressure **CVD** procedure that deposits a TaN film over the substrate. After the Cu deposition, a photoresist layer is subsequently fabricated for patterning the deposited Cu contact and TaN layers, whereby the deposited film of TaN is patterned to form the metalization diffusion barrier for the semiconductor device. The TaN low-pressure **CVD** procedure includes depositing a layer of TaN using the metalorg. precursor tert-butylimido-tris(diethylamido)tantalum (TBTDET) in a cold-wall low-pressure reactor with a base pressure of .apprx.10-5 torr. The source of the metalorg. precursor is vaporized at .apprx.40-50°. The typical deposition pressure is .apprx.20 mtorr. A TaN layer of low C content and low resistivity may thus be formed in the disclosed **CVD** procedure having effective capability against Cu diffusion.

L8 ANSWER 28 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:574538 CAPLUS
DN 127:214145
TI Five- and six-coordinate precursors for titanium nitride deposition
IN Vaartstra, Brian A.
PA Micron Technology, Inc., USA
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

PI	US 5659057	A	19970819	US 1996-599565	19960209 <--
	US 5908947	A	19990601	US 1997-915755	19970821 <--
PRAI	US 1996-599565	A2	19960209		

OS MARPAT 127:214145

AB Improved precursors for use in **CVD** of thin films of Ti-based materials are provided, which are either 5- or 6-coordinate and thus sterically saturated and protected from attack of the coreactant in the gas phase. Specific precursors have the formula Ti[N(R1)(R2)]x[(R3)NC(R4)(R5)C(R6)(R7)N(R8)(R9)]y wherein each of R1, R2, R3, R8 and R9 are (C1-C4) alkyl, each of R4, R5, R6, and R7 are each H or (C1-C4) alkyl and x and y are 1-3. Thus, Ti(NMe2)3(NMeCH2CH2NMe2) was prepared from Ti(NMe2)4 and Me2NCH2CH2NMeH and decomposed in He to give TiN films on Si wafer with SiO2 deposited on it. The thin films produced include Ti nitride and amorphous Ti-Si-nitride.

L8 ANSWER 29 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:494157 CAPLUS
DN 127:227878
TI Electrical characterization of silicon dioxide thin films prepared by chemical vapor deposition from tetrakis(diethylamino)silane and ozone
AU Maruyama, Toshiro
CS Department of Chemical Engineering, Faculty of Engineering, Kyoto University, Kyoto, 606, Japan
SO Japanese Journal of Applied Physics, Part 2: Letters (**1997**), 36(7B), L922-L925
CODEN: JAPLD8; ISSN: 0021-4922
PB Japanese Journal of Applied Physics
DT Journal
LA English

AB Silicon dioxide thin films were prepared by a low-temperature atmospheric-pressure **CVD** deposition method from tetrakis(dithylamino)silane-ozone at a substrate temperature above 200°. The relative dielec. consts. of the films prepared in this study were lower than those for films prepared from tetraethoxysilane-ozone. The relative dielec. consts. for both films were nearly proportional to the absorbance of Si-O· bonds at about 950

cm-1, indicating that an ionic polarization due to the nonbridging oxygen was closely connected with the relative dielec. constant films prepared using ozone at a low substrate temperature
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 30 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:366262 CAPLUS
DN 126:349934
TI **CVD** of silicon-containing protective coatings on substrates
IN Haltrich, Marc; Benien, Hannelore; Meistring, Rolf
PA Daimler-Benz A.-G., Germany; Daimler-Benz Aerospace Aktiengesellschaft
SO Ger., 4 pp.
CODEN: GWXXAW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19635848	C1	19970424	DE 1996-19635848	19960904 <--
	WO 9810118	A1	19980312	WO 1997-EP4715	19970829 <--
	W: CZ, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 925383	A1	19990630	EP 1997-940144	19970829 <--
	EP 925383	B1	20010530		
	R: DE, FR, GB, IT				
	JP 2001500926	T2	20010123	JP 1998-512212	19970829 <--
	US 6177136	B1	20010123	US 1999-242975	19990226 <--
PRAI	DE 1996-19635848	A	19960904		
	WO 1997-EP4715	W	19970829		

OS MARPAT 126:349934
AB [N(R1)2]3SiN(R2)B[N(R1)2]2, where R1 = C1-4 alkyl and R2 = H or C1-4 alkyl, is used as the starting material for **CVD** of Si-containing protective coatings.

L8 ANSWER 31 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1997:196862 CAPLUS
DN 126:285955
TI Properties of metalorganic chemical vapor deposited tantalum nitride thin films
AU Sun, S. C.; Tsai, M. H.; Tsai, C. E.; Chiu, H. T.
CS National Nano Device Laboratory, Institute of Electronics, National Chiao Tung University, Taipei, Peop. Rep. China
SO Proceedings - International Conference on Solid-State and Integrated Circuit Technology, 4th, Beijing, Oct. 24-28, 1995 (**1995**), 547-549. Editor(s): Baldwin, Gary L. Publisher: Institute of Electrical and Electronics Engineers, New York, N. Y.
CODEN: 64CRAT
DT Conference
LA English
AB Low-resistivity Ta nitride (TaN) films were successfully realized by low-pressure metalorg. **CVD** using a new precursor TBTDET (terbutylimido-tris-diethylamino Ta). Data from TEM and XRD anal. indicated that 600° as-deposited films exhibit the polycryst. structure with <200> preferred orientation. **CVD** TaN films were studied as diffusion barriers for Cu and Al interconnections.

L8 ANSWER 32 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:643530 CAPLUS
DN 125:290822
TI Manufacture of protective insulating film with good step coverage for semiconductor device
IN Muroyama, Masakazu
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08227890	A2	19960903	JP 1995-32467	19950221 <--
PRAI	JP 1995-32467		19950221		

AB The title method involves the following steps; forming a protective insulating film on an uneven semiconductor substrate from a N-containing organic Si compound, 1st heating the film for fluidization of the insulating film, and 2nd heating for removal of impurities in the insulating film. The title method involves the following steps; forming a protective insulating film on an uneven semiconductor substrate at relatively low plasma d. from a N-containing organic Si compound and nitridizing the film in a nonoxidizing atmospheric A Si nitride protective insulating film with good step coverage was obtained.

L8 ANSWER 33 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:643473 CAPLUS
DN 125:278701
TI Manufacture of titanium nitride film by metalorganic chemical vapor deposition
IN Ooshita, Yoshio
PA Nippon Electric Co, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08218169	A2	19960827	JP 1995-42559	19950208 <--
PRAI	JP 1995-42559		19950208		

AB The TiN film is manufactured from (A) organic gas containing Ti and N or (B) Ti-containing organic gas and N-containing gas and (C) halogen-containing gas. This method is useful for manufacture of barrier metal layers of semiconductor devices.

L8 ANSWER 34 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:523413 CAPLUS
DN 125:207816
TI Laser applications for micromachining
AU Esashi, Masayoshi; Minami, Kazuyuki
CS Faculty of Engineering, Tohoku University, Sendai, 980-77, Japan
SO AIP Conference Proceedings (**1996**), 369(Pt. 2, Laser Interaction and Related Plasma Phenomena, Pt. 2), 1268-1273
CODEN: APCPCS; ISSN: 0094-243X
PB AIP Press
DT Journal
LA English
AB Laser assisted Si etching was developed for packaged microsensors. Laser assisted Cr **CVD** was applied for selective metalization on nonplaner surfaces. High rate laser **CVD** using low temperature condensation method was developed for micro assembly and projection patterning.

L8 ANSWER 35 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:518047 CAPLUS
DN 125:181820
TI Low pressure chemical vapor deposition of silicon nitride using the environmentally benign precursor tris(dimethylamino)silane
AU Levy, R. A.; Lin, X.; Grow, J. M.
CS New Jersey Inst. Technology, Newark, NJ, 07102, USA
SO Proceedings - Electrochemical Society (**1996**), 96-5(Chemical Vapor Deposition), 239-246
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB The environmentally benign precursor tris(dimethylamino)silane (TDMAS) was used with NH3 to synthesize Si nitride films by low pressure **CVD** . The growth kinetics was studied as a function of deposition temperature, total pressure, and NH3/TDMAS flow ratios. The deposits are essentially

stoichiometric and contain .apprx.5 atomic% C when appropriate NH3 concns. are present. The films are in all cases amorphous and highly tensile. For optimized processing conditions, values of the refractive index are close to those reported for Si3N4. The film d. increases with higher deposition temps. up to 800° and then decrease due to the onset of gas phase nucleation effects. This behavior is readily reflected in the etch rate of those films. FTIR spectra reveal H for even the highest studied deposition temperature (900°). The hardness and Young's modulus of the films increase with higher deposition temps. reaching saturation values near 20 and 185 GPa, resp., >800°.

L8 ANSWER 36 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:366877 CAPLUS
DN 125:39970
TI Low pressure chemical vapor deposition of silicon nitride using the environmentally friendly tris(dimethylamino)silane precursor
AU Levy, R. A.; Lin, X.; Grow, J. M.; Boeglin, H. J.; Shalvoy, R.
CS New Jersey Inst. Technol., Newark, NJ, 07102-1982, USA
SO Journal of Materials Research (**1996**), 11(6), 1483-1488
CODEN: JMREEE; ISSN: 0884-2914
PB Materials Research Society
DT Journal
LA English
AB This study investigates the use of the environmentally benign precursor tri(dimethylamino)silane (TDMAS) with NH3 to synthesize silicon nitride films by low pressure chemical vapor deposition. The growth kinetics are investigated as a function of deposition temperature, total pressure, and NH3/TDMAS flow ratios. The deposits are found to be essentially stoichiometric and to contain .apprx.5 atomic % carbon when appropriate NH3 concns. are present. The films are found in all cases to be amorphous and highly tensile. For optimized processing conditions, values of the refractive index are close to those reported for Si3N4. The film d. is observed to increase with higher deposition temps. up to 800°C and then decrease due to the onset of gas phase nucleation effects. This behavior is readily reflected in the etch rate of those films. FTIR spectra reveal the presence of hydrogen even at high deposition temps. (900°C). Hardness and Young's modulus of the films are seen to increase with higher deposition temps., reaching saturation values near 20 and 185 GPa, resp., above 800°C.

L8 ANSWER 37 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:288169 CAPLUS
DN 124:299994
TI Chemical Vapor Deposition of TiN from Tetrakis(dimethylamido)titanium and Ammonia: Kinetics and Mechanistic Studies of the Gas-Phase Chemistry
AU Weiller, Bruce H.
CS Mechanics and Materials Technology Center, Aerospace Corporation, Los Angeles, CA, 90009-2957, USA
SO Journal of the American Chemical Society (**1996**), 118(21), 4975-4983
CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB The gas-phase kinetics of the reaction of tetrakis(dimethylamido)titanium (Ti(NMe2)4) with NH3 have been measured using a flow tube reactor and FTIR spectrometer. Ti(NMe2)4 reacts rapidly with NH3 in a transamination reaction to form HNMe2 as a direct product. The bimol. rate constant for the reaction of Ti(NMe2)4 with NH3 at 24 °C is k = (1.2 ± 0.2) + 10-16 cm3 mols.-1 s-1. A primary kinetic isotope effect of kH/kD = 2.6 ± 0.4 is observed with ND3 indicating that cleavage of an N-H bond is the rate limiting step. Therefore the rate constant is assigned to the initial transamination reaction with NH3. The temperature dependence of the rate constant gives activation parameters of log(.SCRIPTA.) = -10.0 ± 0.2 (ΔS.dag. = -19 cal/(mol K)) and Ea = 8.1 ± 0.1 kcal/mol (ΔH.dag. = 6.9 ± 0.1 kcal/mol). When excess HNMe2 is added to the gas flow, the reaction rate is strongly suppressed. This is evidence for a reversible initial transamination reaction: Ti(NMe2)4 + NH3 .dblarw. (Me2N)3Ti-NH2 + HNMe2. The proposed mechanism for subsequent reaction is

elimination of HNMe2: (Me2N)3Ti-NH2 → (Me2N)2Ti:NH + HNMe2. From the dependence of the observed rate constant on HNMe2, the branching ratio is obtained for the above elimination reaction vs. reaction with HNMe2: (Me2N)3Ti-NH2 + HNMe2 → Ti(NMe2)4 + NH3. The relevance of these results to the chemical vapor deposition of TiN by this chemical is discussed.

L8 ANSWER 38 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:271477 CAPLUS
DN 124:303259
TI Manufacture of silicon nitride-base electrically insulating film
IN Sato, Junichi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08055851	A2	19960227	JP 1994-193075	19940817 <--
	JP 3287124	B2	20020527		
PRAI	JP 1994-193075		19940817		

AB The Si nitride-base elec. insulating film is manufactured by chemical vapor depositing an organic Si compound containing Si-N bonds with application of ultrasonic wave to a substrate. A Si nitride film with good step coverage and water resistance was obtained.

L8 ANSWER 39 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:256224 CAPLUS
DN 124:330001
TI Manufacture of semiconductor device with silicon nitride film
IN Muroyama, Masakazu; Kito, Hideyoshi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08031825	A2	19960202	JP 1994-182899	19940712 <--
	JP 3282769	B2	20020520		
	US 5578530	A	19961126	US 1995-501738	19950712 <--
PRAI	JP 1994-182899	A	19940712		

AB The Si nitride film in the device is manufactured from an organic Si compound containing N and F. The Si nitride film may be manufactured from the Si source by plasma **CVD**. The Si nitride film shows good step coverage.

L8 ANSWER 40 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:236198 CAPLUS
DN 124:329193
TI Performance of MOCVD tantalum nitride diffusion barrier for copper metalization
AU Sun, S. C.; Tsai, M. H.; Tsai, C. E.; Chiu, H. T.
CS Department Electronics Engineering, National Chiao Tung University, Hsinchu, Taiwan
SO Symposium on VLSI Technology, Digest of Technical Papers, 15th, Kyoto, June 6-8, 1995 (**1995**), 29-30 Publisher: Business Center for Academic Societies Japan, Tokyo, Japan.
CODEN: 62PWAR
DT Conference
LA English
AB A low-resistivity and low C concentration **CVD** TaN film was realized by using a new precursor terbutylimido-tris-diethylamido Ta (TBTDET). **CVD** TaN as a diffusion barrier for Cu has higher thermal stability up to 500° than **CVD** TiN of 450°.

L8 ANSWER 41 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:211977 CAPLUS

DN 124:276068
TI Manufacture of semiconductor device involving formation of silicon nitride film
IN Muroyama, Masakazu
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08017819	A2	19960119	JP 1994-173310	19940701 <--
PRAI	JP 1994-173310		19940701		

AB The title manufacture involves formation of a SiN film from a N-containing organic Si compound containing an etching gas. The etching gas may be a fluorocarbon derivative, e.g. CF4, C2F6, and C3F8. The method gave devices with improved step coverage.

L8 ANSWER 42 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:91801 CAPLUS
DN 124:133081
TI Chemical vapor deposition of insulating films
IN Kito, Hideyoshi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07273106	A2	19951020	JP 1994-61079	19940330 <--
	JP 3348509	B2	20021120		
PRAI	JP 1994-61079		19940330		

AB The vapor process comprises use of an organic Si compound(s), which contains ≥1 Si-Si bonds with N bonded at least 1 of Si thereof (e.g., the N atom bonded to the Si may form -NR2 (R = C≥1 hydrocarbon) or a part of an azide radical), among the source gases. The insulating films may be Si nitride or Si oxynitride, and may be formed by plasma **CVD** (e.g., by intermittent generation of plasma). Deposition rate is drastically increased.

L8 ANSWER 43 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:73731 CAPLUS
DN 124:190212
TI Manufacture of silicon nitride-base electrically insulating film by plasma chemical vapor deposition
IN Sato, Junichi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07300680	A2	19951114	JP 1994-91546	19940428 <--
PRAI	JP 1994-91546		19940428		

AB The Si nitride-base elec. insulating film is manufactured by supplying raw materials containing an organic Si compound having (A) ≥1 azide group and (B) ≥1 C≥2 hydrocarbyl group or ≥1 NR2 (R = C≥1 hydrocarbyl) group with intermittently generating plasma. The film is useful as passivation films or interlayer insulating films of semiconductor devices. The film showed good step coverage and uniform thickness.

L8 ANSWER 44 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:757795 CAPLUS

DN 123:302763
TI Metalorganic chemical vapor deposition of tantalum nitride by tertbutylimidotris(diethylamido)tantalum for advanced metalization
AU Tsai, M. H.; Sun, S. C.; Chiu, H. T.; Tsai, C. E.; Chuang, S. H.
CS Institute Electronics, National Chiao Tung University, Hsinchu, 30050, Taiwan
SO Applied Physics Letters (**1995**), 67(8), 1128-30
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
AB The authors deposited tantalum nitride (TaN) films by low-pressure metalorg. **CVD** (LP-MOCVD) using a new precursor tertbutylimidotris(diethylamido)tantalum (TBTDET). Strong Ta-N double bond in the precursor preserved the TaN portion during the pyrolysis process. This method has yielded low-resistivity films. It changed from 10 mΩ cm (deposited at 500°) to 920 μΩ cm (obtained at 650°). The carbon and oxygen concns. were low in the films deposited at 600°, as determined by XPS. TEM and x-ray diffraction anal. indicated that the as-deposited films exhibited polycryst. structures with the lattice consts. close to the bulk TaN value. The TaN barrier layer was successfully applied as a glue layer for **CVD** tungsten (W) metalization schemes.

L8 ANSWER 45 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:751939 CAPLUS
DN 123:235563
TI Zirconium carbonitride films produced by plasma-assisted metal organic chemical vapor deposition
AU Berndt, H.; Zeng, A.-Q.; Stock, H.-R.; Mayr, P.
CS Stiftung Institut fuer Werkstofftechnik, Badgasteiner Str. 3, Bremen, D-28359, Germany
SO Surface and Coatings Technology (**1995**), 74-75(1-3, Pt. 1), 369-74
CODEN: SCTEEJ; ISSN: 0257-8972
PB Elsevier
DT Journal
LA English
AB Zirconium carbonitride thin films were deposited on steel substrates by means of the d.c. plasma-assisted chemical vapor deposition technique using tetrakis-(methylethylamido)-zirconium (Zr(NMeEt)4) and tetrakis-(diethylamido)-zirconium (Zr(NEt2)4) as precursors. Depositions were successfully carried out at a substrate temperature of 350°C using the carrier gases hydrogen, nitrogen and argon at a total pressure of 200 Pa. The influence of the precursors on the deposition rate and film morphol. was studied by SEM. By means of X-ray diffraction and XPS it was established that f.c.c. Zr(C,N) coatings were obtained which contain a significant amount of oxygen and organic bonded carbon. Using Zr(NEt2)4 as the starting source, the substrate temperature was varied from 200 to 500°C. The deposition rate, morphol. and chemical composition of the coatings depend on the substrate temperature Up to a temperature of 400°C, fine-grained polycryst. Zr(C,N) coatings were obtained. If the substrate temperature was kept below 300°C, the morphol. of these coatings exhibited a columnar structure. XPS measurements revealed that the amount of organic bonded carbon impurities in the films decreased at deposition temps. above 250°C. The Vickers hardness of the coatings deposited at 300°C at maximum growth rate reached 2000 HV.

L8 ANSWER 46 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:651172 CAPLUS
DN 123:213629
TI Plasma-enhanced chemical vapor deposition of silicon, germanium, and tin nitride thin films from metalorganic precursors
AU Hoffman, David M.; Rangarajan, Sri Prakash; Athavale, Satish D.; Economou, Demetre J.; Liu, Jia-Rui; Zheng, Zongshuang; KanChu, Wei
CS Dept. Chem., Univ. Houston, Houston, TX, 77204-5641, USA
SO Journal of Vacuum Science & Technology, A: Vacuum, Surfaces, and Films (**1995**), 13(3, Pt. 1), 820-5
CODEN: JVTAD6; ISSN: 0734-2101

PB American Institute of Physics
DT Journal
LA English
AB Nearly stoichiometric Si, Ge, and Sn nitride thin films were deposited from the corresponding homoleptic dimethylamido complexes M(NMe2)4 (M = Si, Ge, Sn; Me = CH3), and an NH3 plasma at low substrate temps. (<400°). Sn nitride films were also deposited from Sn(NMe2)4 and NH3 without plasma activation. The film showed little (<few atomic%) or no C or O contamination. The barrier properties of the Si and Ge nitride films were evaluated by using backscattering spectrometry. Homoleptic dimethylamido Si and Ge compds. are attractive alternatives to silane and germane for use in the plasma-enhanced **CVD** of nitride thin films.

L8 ANSWER 47 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:523975 CAPLUS
DN 122:303584
TI Chemical vapor deposition processes of silica films
IN Maruyama, Toshiro
PA Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07026383	A2	19950127	JP 1993-220441	19930707 <--
PRAI	JP 1993-220441		19930707		

AB The films are manufactured by **CVD** by using Si sources containing tetrakisdiethylaminosilane and O sources and are used for insulating films, protective films, etc.

L8 ANSWER 48 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:401156 CAPLUS
DN 122:175203
TI Chemical vapor deposition and apparatus therefor and manufacture of multilayer wiring
IN Ikeda, Yasuro
PA Nippon Electric Co, Japan
SO Jpn. Kokai Tokkyo Koho, 24 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06168930	A2	19940614	JP 1992-320973	19921130 <--
	US 5593741	A	19970114	US 1995-495873	19950628 <--
PRAI	JP 1992-320973	A	19921130		
	US 1993-159231	B1	19931130		

AB The title method comprises use of organic silane compd(s). and O2 in a portion of the source gas and optional addition of H2O2, H2, H2O, hydrocarbon(s), alc(s)., carbonyl compd(s)., and/or carboxylic acid(s) to the source, and periodic variation of intensity of plasma irradiation (e.g., by repetition of generation and non-generation of the plasma) toward the substrate. An O plasma ion source may be employed and intensity of the plasma irradiation is periodically changed. The title process comprises formation of an insulating film on a metal wiring layer, a resist film and an even surface-forming film such as an organic-source SiO2 film thereon, and etching-back of the films by reactive ion etching.

L8 ANSWER 49 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:326960 CAPLUS
DN 123:99668
TI Formation of SiN films by plasma-enhanced chemical vapor deposition using [(CH3)2N]3SiN3
AU Kitoh, Hideyuki; Muroyama, Masakazu
CS Process Div., Sony Corp., Kanagawa, 243, Japan

SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (**1994**), 33(12B), 7076-9
CODEN: JAPNDE; ISSN: 0021-4922
PB Japanese Journal of Applied Physics
DT Journal
LA English
AB An organic source gas, tris(dimethylamino)silyl azide (TDSA, [Me2N]3SiN3), was used for the deposition of a passivation film of sub-half-micrometer devices. Deposition temperature dependence of the film formed by plasma-enhanced **CVD** (PECVD) using TDSA was studied and step coverage of the TDSA film was examined As a result, hydrocarbon content in the film decreased with increasing deposition temperature The bottom step coverage of the films formed using TDSA was greatly improved compared to that of the conventional Si nitride film.

L8 ANSWER 50 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:276848 CAPLUS
DN 122:43269
TI Formation of silica interlayer insulating films
IN Mitomo, Tooru
PA Kawasaki Steel Co, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06132276	A2	19940513	JP 1992-284350	19921022 <--

PRAI JP 1992-284350 19921022
AB The title method comprises **CVD** from a source gas including (R1R2N)nSiH4-n and O-containing compd(s). (R1, R2 = H, Me, ET, Pr, and/or Bu, except H both for R1 and R2; n = 1-4). Steps of high aspect ratios can be filled with the film having an even surface.

L8 ANSWER 51 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:276847 CAPLUS
DN 122:43268
TI Formation of silicon nitride protective films for semiconductor devices
IN Mitomo, Tooru; Sato, Nobuyoshi
PA Kawasaki Steel Co, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06132284	A2	19940513	JP 1992-284351	19921022 <--

PRAI JP 1992-284351 19921022
AB The title method comprises **CVD** from (R1R2N)nSiH4-n (R1, R2 = H, Me, Et, Pr, and/or Bu, except H both for R1 and R2; n = 1-4). The film prepared has a lowered H content and an optimum stress, and plasma damage of the film can be avoided.

L8 ANSWER 52 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:276153 CAPLUS
DN 122:174743
TI FTIR studies of the adsorption/desorption behavior of Cu chemical vapor deposition precursors on silica. IV. Interaction of (1,1,1,5,5,5-hexafluoroacetylacetonato)(2-butyne)copper(I), (hfac)Cu(2-butyne) and (1,1,1,5,5,5-hexafluoroacetylacetonato)(vinyltrimethylsilane)copper(I), (hfac)Cu(VTMS) with passivated silica surfaces and comparison to selective **CVD** of Cu
AU Farkas, J.; Hampden-Smith, M. J.; Kodas, T. T.
CS Dep. Chem. Eng. Chem., Univ. New Mexico, Albuquerque, NM, 87131, USA
SO Journal of the Electrochemical Society (**1994**), 141(12), 3547-55
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society

DT Journal
LA English
AB Selective **CVD** on metals in the presence of SiO2 can be achieved by passivating the SiO2 surface using reagents which replace or shield isolated hydroxyl, H-bonded hydroxyl, and SiO four-member rings with less reactive-SiR3 groups. This process was studied by FTIR of (hfac)CuL (L = VTMS and 2-butyne) adsorption/desorption on unpassivated and passivated SiO2 surfaces with varying surface concns. of hydroxyl groups and four-member SiO rings. The passivating reagents included monofunctional trimethylchlorosilane (TMSCI), hexamethyldisilazane (HMDS), trimethyldimethylaminosilane (TMDMA), dimethyl-tert-butyldimethylaminosilane (DMBDMA), and bifunctional dimethylbis(dimethylamino)silane (DMDMA) species. Effective passivation was obtained by the rapid reaction of DMBDMA with hydroxylated SiO2 surfaces even when exposed to H2O vapor. High-temperature treatment of SiO2 before passivation led to less effective passivation because a smaller fraction of the SiO2 surface was protected by the passivating reagent. Bifunctional passivating reagents were less effective because the unreacted functional group on the reagent can react with (hfac)CuL species. Various other aspects of the interaction of (hfac)CuL species with SiO2 surfaces and the implications of these results for selective **CVD** are discussed.

L8 ANSWER 53 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:262286 CAPLUS
DN 122:59478
TI Plasma enhanced chemical vapor deposition of silicon nitride films from a metal-organic precursor
AU Hoffman, David M.; Rangarajan, Sri Prakash; Athavale, Satish D.; Deshmukh, Shashank C.; Economou, Demetre J.; Liu, Jia-Rui; Zheng, Zongshuang; Chu, Wei-Kan
CS Department Chemistry, University Houston, Houston, TX, 77204-5641, USA
SO Journal of Materials Research (**1994**), 9(12), 3019-21
CODEN: JMREEE; ISSN: 0884-2914
PB Materials Research Society
DT Journal
LA English
AB Silicon nitride films are grown by plasma enhanced chemical vapor deposition from Si(NMe2)4 and ammonia precursors at substrate temps. of 200-400°. Backscattering spectrometry shows that the films are close to stoichiometric. Depth profiling by Auger electron spectroscopy shows uniform composition and no oxygen or carbon contamination in the bulk. The films are featureless by SEM under 100,000X magnification.

L8 ANSWER 54 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:137762 CAPLUS
DN 122:120102
TI Low temperature atmospheric pressure chemical vapor deposition of SiO2 and SnO2 films
AU Hoffman, David M.; Atagi, Lauren M.; Chu, Wei-Kan; Liu, Jia-Rui; Zheng, Zongshuang; Rubiano, Rodrigo R.; Springer, Robert W.; Smith, David C.
CS Dept. of Chemistry, Univ. of Houston, Houston, TX, 77204, USA
SO Materials Research Society Symposium Proceedings (**1994**), 343(Polycrystalline Thin Films: Structure, Texture, Properties and Applications), 523-8
CODEN: MRSPDH; ISSN: 0272-9172
DT Journal
LA English
AB Depositions of high quality SiO2 and SnO2 films from the reaction of homoleptic amido precursors M(NMe2)4 (M = Si, Sn) and oxygen were carried out in an atmospheric pressure **CVD** reactor. The films were deposited on silicon, glass and quartz substrates ad temps. of 250 to 450°. The silicon dioxide films are stoichiometric (O/Si = 2.0) with <0.2 atom % C and 0.3 atom % N and have hydrogen contents of 9 ± 5 atom %. They are deposited with growth rates from 380 to 900 Å/min. The refractive indexes of the SiO2 films from 380 to 900 Å/min. The refractive indexes of the SiO2 films are 1.46, and IR spectra show a possible Si-OH peak at 950 cm-1. X-ray diffraction studies revealed that the SiO2 film deposited at 350° is amorphous. The tin oxide films are

stoichiometric (O/Sn = 2.0) and contain <0.8 atom % carbon, and 0.3 atom % N. No hydrogen was detected by elastic recoil spectroscopy. The band gap for the SnO2 films, as estimated from transmission spectra, is 3.9 eV. The resistivities of the tin oxide films are in the range 10-2 to 10-3 Ω cm and do not vary significantly with deposition temperature The tin oxide film deposited at 350° is crystalline cassitterite with some (101) orientation.

L8 ANSWER 55 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:470235 CAPLUS
DN 121:70235
TI Chemical vapor deposition of silicon dioxide film
IN Maruyama, Toshiro
PA Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 06080413	A2	19940322	JP 1992-270711	19920827 <--
PRAI JP 1992-270711		19920827		

AB The SiO2 film is manufactured by chemical vapor depositing tetrakis(dimethylamino)silane (I) and an O-containing raw material. A transparent film on a borosilicate glass substrate was obtained from O3 and I at 40° and 10 nm/min showed good adhesion to a substrate.

L8 ANSWER 56 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:458746 CAPLUS
DN 121:58746
TI Laser projection **CVD** using the low temperature condensation method
AU Takashima, Kohji; Minami, Kazuyuki; Esashi, Masayoshi; Nishizawa, Jun-ichi
CS Ishikawajima-Harima Heavy Industries Co., Ltd., 1-15 Toyosu, 3-Chome, Koto-Ku, Tokyo, 135, Japan
SO Applied Surface Science (**1994**), 79-80(1-4), 366-74
CODEN: ASUSEE; ISSN: 0169-4332
DT Journal
LA English
AB Laser projection **CVD** using the low temperature condensation method was developed. By irradiating a cooled substrate with an ArF excimer laser in an organic gas environment, poly(Me methacrylate) (I), SnO2 and SiO2 films were deposited selectively with a high deposition rate of about 0.1 μm min-1. Special attention was given to the SiO2 film in order to obtain a high deposition rate and good quality. These films can be deposited successively, being promising for the realization of stacked microstructures. This technique can be also applied where a uniform resist coating is not possible. By using this technique, the I film was selectively deposited on the end of an optical fiber.

L8 ANSWER 57 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:305476 CAPLUS
DN 120:305476
TI Silicon nitride films grown by hydrogen radical enhanced chemical vapor deposition utilizing trisdimethylaminosilane
AU Yasui, Kanji; Otsuki, Kazutaka; Akahane, Tadashi
CS Department of Electronics, Nagaoka University of Technology, Kamitomioka, Nagaoka-shi, Niigata, 940-21, Japan
SO Journal of Non-Crystalline Solids (**1994**), 169(3), 301-5
CODEN: JNCSBJ; ISSN: 0022-3093
DT Journal
LA English
AB The growth of silicon nitride films using trisdimethylaminosilane (TDMAS) as a source material is described. TDMAS was decomposed by hydrogen radicals generated with a microwave plasma. Me groups included in the TDMAS were extracted from the film growing surface by hydrogen radicals. Composition and optical and elec. properties of SiN films have been examined with the aid of IR absorption spectroscopy, electron-probe microanal., UV and

visible light transmission spectra, and voltage-current measurements. Transparent and insulating SiN films were obtained at a low temperature

L8 ANSWER 58 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:257749 CAPLUS
DN 120:257749
TI Homoleptic Tin and Silicon Amido Compounds as Precursors for Low-Temperature Atmospheric Pressure Chemical Vapor Deposition of Tin and Silicon Oxide Thin Films
AU Atagi, Lauren M.; Hoffman, David M.; Liu, Jia-Rui; Zheng, Zongshuang; Chu, Wei-Kan; Rubiano, Rodrigo R.; Springer, Robert W.; Smith, David C.
CS Department of Chemistry, University of Houston, Houston, TX, 77204, USA
SO Chemistry of Materials (**1994**), 6(4), 360-1
CODEN: CMATEX; ISSN: 0897-4756
DT Journal
LA English
AB Main-group amido complexes are reactive sources of the main-group elements in **CVD** processes. This is illustrated by reacting Sn(NMe2)4 and Si(NMe)4 with O in an atmospheric pressure chemical vapor deposition reactor to give nearly stoichiometric SnO2 and SiO2 films at low substrate temps.

L8 ANSWER 59 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:251345 CAPLUS
DN 120:251345
TI Deposition of titanium nitride thin films at low temperatures by **CVD** using metalorganic and organometallic titanium compounds as precursors
AU Spee, C. I. M. A.; Linden, J. L.; Van der Zouwen-Assink, E. A.; Timmer, K.; Verbeek, F.; Meinema, H. A.; Frigo, D. M.; Van der Ven, S.
CS Plast. Rubber Res. Inst., TNO, Zeist, 3700 AC, Neth.
SO Journal de Physique IV: Proceedings (**1993**), 3(C3, Proceedings of the Ninth European Conference on Chemical Vapour Deposition, 1993), 289-96
CODEN: JPICEI; ISSN: 1155-4339
DT Journal
LA English
AB A series of titanium compds., Ti(NMe2)3, [Ti(μ-N-t-Bu)(-NMe2)2]2, Ti(t-BuDAD)2 and CpTiC7H7, have been screened in combination with NH3 for their suitability as precursors for the **CVD** of titanium nitride films at substrate temps. of 300-600 °C and a system pressure of 1.5 Torr. The best TiN layers have been grown using t-BuTi(NMe2)3 and NH3, from which an 0.8 μm thick layer deposited at 400 °C, showed a resistivity of 1.4 + 103 Ω-cm and contained 5 atomic% carbon and 6 atomic% oxygen.

L8 ANSWER 60 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:195244 CAPLUS
DN 120:195244
TI Manufacture of nitride films
IN Hochido, Juko; Futaki, Takehiko
PA Kojundo Kagaku Kenkyusho Kk, Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05287535	A2	19931102	JP 1992-134114	19920409 <--
PRAI JP 1992-134114		19920409		

AB Nitride films are formed on substrates using HN3. Thus, a Si3N4 film was prepared by **CVD** using HN3, N, and tris(diethylamino)silane.

L8 ANSWER 61 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:122394 CAPLUS
DN 120:122394
TI Electron cyclotron resonance chemical vapor deposition of silicon oxynitrides using tris(dimethylamino)silane
AU Boudreau, Marcel; Boumerzoug, Mohamed; Mascher, peter; Jessop, Paul E.

CS Cent. Electrophotonic Mater. Devices, McMaster Univ., Hamilton, ON, L8S 4L7, Can.
SO Applied Physics Letters (1993), 63(22), 3014-16
CODEN: APPLAB; ISSN: 0003-6951
DT Journal
LA English
AB Tris(dimethylamino)silane was used as an organosilicon source for the deposition of Si oxynitride thin films. The depositions were carried out at low substrate temps. (<150°). Films with compns. varying from Si3N4 to SiO2 were deposited on Si substrates by varying the N2/O2 flow ratio to the plasma chamber. In situ ellipsometry measurements of the film optical index were well correlated with film composition Only low levels of C (<3 atomic%) were present, while FTIR spectroscopy showed low levels of bonded H. The deposition rate of high quality Si3N4 was ≤220 Å/min.

L8 ANSWER 62 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1994:42596 CAPLUS
DN 120:42596
TI Low-pressure **CVD** of a mixed-phase titanium nitride/titanium silicide film in semiconductor device manufacture
IN Sandhu, Gurtej S.; Doan, Trung T.
PA Micron Technology, Inc., USA
SO U.S., 4 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 5252518	A	19931012	US 1992-845215	19920303 <--
PRAI US 1992-845215		19920303		

AB A semiconductor device being manufactured is placed in a vacuum chamber, a stream of Ti source gas (an organometallic precursor, especially tetrakisdimethylaminotitanium) and a stream of organosilane gas [especially tris(dimethylamino)silane] are supplied to the chamber, so that the 2 gases combine and deposit a TiN/TiSix mixed-phase film on the semiconductor device.

L8 ANSWER 63 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1993:685153 CAPLUS
DN 119:285153
TI Disilanylamines. Compounds comprising the structural unit silicon-silicon-nitrogen, as single-source precursors for plasma-enhanced chemical vapor deposition (PE-**CVD**) of silicon nitride
AU Schuh, Heinz; Schlosser, Thomas; Bissinger, Peter; Schmidbaur, Hubert
CS Anorg. Chem. Inst., Tech. Univ. Muenchen, Garching, Germany
SO Zeitschrift fuer Anorganische und Allgemeine Chemie (**1993**), 619(8), 1347-52
CODEN: ZAACAB; ISSN: 0044-2313
DT Journal
LA English
AB As potential single-source precursors for the plasma-enhanced **CVD** of Si3N4, disilanylamines were prepared containing the structural unit Si-Si-N. Si2Cl6 reacts with Et2NH to yield (Et2N)Cl2SiSiCl2(NEt2), 1, and (Et2N)2ClSiSiCl(NEt2)2, 2, while with (Me2CH)2NH [(Me2CH)2N]Cl2SiSiCl3, 3, and [(Me2CH)2N]Cl2SiSiCl2[N(Me2CH)2], 4, are formed as colorless, stable liqs. (1-3) or solids (4). The crystal structure of 4 was determined The mol. shows a staggered gauche conformation (dihedral angle N-Si-Si-N 71°, Si-Si 1.670 Å). 2-4 Are converted into the corresponding hydrides 6-8 in good yields by reaction with LiAlH4 in monoglyme, while 1 is undergoing an isomerization to give (Et2N)2SiHSiH3 (5) in this process. 5-8 Are colorless liqs., not spontaneously inflammable in air. [(Me2CH)2N]H2SiSiH2[N(Me2CH)2], 8, was chosen for downstream mode PE-**CVD** of Si3N4. With substrate temps. at 300°, high quality thin films were obtained at high growth rates. These films show refraction indexes of 1.631-1.814 and have low C and very low O contents, but high (Si-bound) H contents. Good insulating properties and good resistance to aqueous alkaline etching are further characteristics which could

make 8-generated films an attractive alternative to conventional plasmanitride materials. 8 Is easy to handle and reduces the hazards usually associated with standard silane precursors.

L8 ANSWER 64 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1993:659730 CAPLUS
DN 119:259730
TI Silicon dioxide thin films prepared by chemical vapor deposition from tetrakis(dimethylamino)silane and ozone
AU Maruyama, Toshiro; Shirai, Toshimasa
CS Fac. Eng., Kyoto Univ., Kyoto, 606, Japan
SO Applied Physics Letters (1993), 63(5), 611-13
CODEN: APPLAB; ISSN: 0003-6951
DT Journal
LA English
AB SiO2 thin films were prepared by a low-temperature atms.-pressure chemical vapor deposition method. The raw materials were tetrakis(dimethylamino)silane and ozone in O gas. At a substrate temperature >40°, the thin films were obtained with a high deposition rate.

L8 ANSWER 65 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1992:163137 CAPLUS
DN 116:163137
TI Method of manufacturing silicon nitride film
IN Mikata, Yuuichi; Moriya, Takahiko
PA Toshiba Corp., Japan
SO Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 464515	A2	19920108	EP 1991-110256	19910621 <--
	EP 464515	A3	19920506		
	EP 464515	B1	19951108		
	R: DE, FR, GB				
	JP 04059971	A2	19920226	JP 1990-171156	19900628 <--
	JP 2637265	B2	19970806		
	US 5234869	A	19930810	US 1991-721819	19910626 <--
PRAI	JP 1990-171156	A	19900628		

AB A Si nitride film is manufactured on a semiconductor substrate using a low-pressure CVD apparatus, including the steps of setting a plurality of semiconductor wafers in a boat in a reaction furnace, increasing the temperature in the reaction tube to a predetd. temperature, decreasing the pressure in the reaction tube to a predetd. pressure, supplying Si(N(CH3)2)4 gas from a 1st gas source to the reaction tube, and supplying NH3 gas from a 2nd gas source to the reaction tube.

L8 ANSWER 66 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1991:454677 CAPLUS
DN 115:54677
TI Two-step generation of palladium aluminum microstructures on laser-generated palladium pre-nucleation patterns using thermal CVD from (trimethylamine)trihydridoaluminum
AU Gottsleben, Oliver; Roesky, Herbert W.; Stuke, Michael
CS Max-Planck-Inst. Biophys. Chem., Abt. Laserphys., Goettingen, W-3400, Germany
SO Advanced Materials (Weinheim, Germany) (1991), 3(4), 201-2
CODEN: ADVMEW; ISSN: 0935-9648
DT Journal
LA English
AB Selective laser patterning (direct-write irradiation) was used to produce a 248 or 514.5 nm-thick Pd layer on an Al2O3 substrate by decomposition of a Pd acetate coating. The Pd pattern then acted as a catalyst for the chemical-vapor deposition (CVD) of Al from a (trimethylamine)trihydridoaluminum precursor. The Al layer had a thickness of 7 μm and a specific resistivity of 5 μΩcm which indicated high purity.

L8 ANSWER 67 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1991:5672 CAPLUS
DN 114:5672
TI Surface decomposition mechanism of the novel precursor bistrimethylamine aluminum hydride on gallium arsenide(100)
AU Wee, A. T. S.; Murrell, A. J.; Singh, N. K.; O'Hare, D. M.; Foord, J. S.
CS Inorg. Chem. Lab., Univ. Oxford, Oxford, OX1 3QR, UK
SO Vacuum (**1990**), 41(4-6), 968-71
CODEN: VACUAV; ISSN: 0042-207X
DT Journal
LA English
AB The surface decomposition mechanism of bistrimethylamine aluminum hydride [(Me3N)2·AlH3] on the Ga-rich (4 + 1) GaAs(100) surface is studied by TDS, HREELS and XPS. The first monolayer of the complex chemisorbs molecularly at 150K. The decomposition pathway involves the activated dissociation of this chemisorbed precursor to produce Al, adsorbed H atoms and trimethylamine. The latter species desorb without further fragmentation and this key feature results in the deposition of carbon-free aluminum films. This contrasts markedly with the decomposition of organometallics like trimethylaluminum which are traditionally used in Al **CVD** where carbon incorporation is an intrinsic part of the decomposition process.

L8 ANSWER 68 OF 68 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1990:190163 CAPLUS
DN 112:190163
TI Chemical modification of spin-on glass for improved performance in integrated circuit fabrication
IN Ting, Chiu H.; Rucker, Thomas G.; Sobczak, Zbigniew P.
PA Intel Corp., USA
SO U.S., 9 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4885262	A	19891205	US 1989-320763	19890308 <--
	JP 03200329	A2	19910902	JP 1990-55196	19900308 <--
PRAI	US 1989-320763	A	19890308		

AB To compensate for severe surface topogs. associated with very large scale integration (VLSI) technol., a thicker non-etch back spin-on-glass (SOG) process is utilized for forming a SOG layer over a chemical vapor deposition (**CVD**) layer. A single layer of SOG is formed over the **CVD** layer, providing planarizing coverage over formational or growth defects. The silylation of the SOG layer provides for the formation of thicker single layers of SOG and significantly reduces the wet etching rate in diluted HF.

10/764,273

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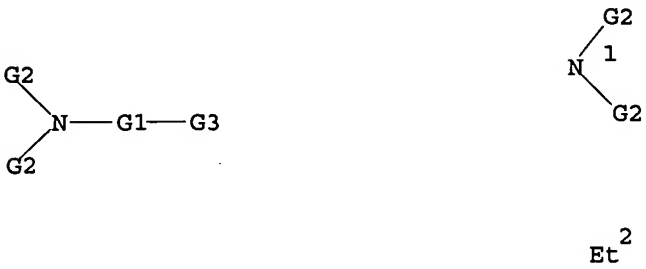

G1 Si,Al,Ce,Hf,La,Nb,Ni,Ta,Ti,V,Zr

G2 Me,Et

G3 [@1],[@2]

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L4         1579 L3 AND PY<2003

=> s l4 and purification
        315174 PURIFICATION
L5           7 L4 AND PURIFICATION

=> d 1-7 bib abs

L5   ANSWER 1 OF 7  CAPLUS  COPYRIGHT 2005 ACS on STN
AN   2001:781205  CAPLUS
DN   135:320126
TI   A process for the purification of organometallic compounds or
     heteroatomic organic compounds with hydrogenated getter alloys
IN   Vergani, Giorgio; Succi, Marco
PA   Saes Getters S.p.A., Italy
SO   PCT Int. Appl., 20 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.           KIND   DATE        APPLICATION NO.        DATE
     ---------------      ----   --------    --------------------   --------
PI   WO 2001079587         A1    20011025    WO 2001-IT185          20010413 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
             HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
             LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,
             SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,
             YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
             DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
             BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     IT 1318475           B1    20030825    IT 2000-MI882          20000419
     IT 1318481           B1    20030825    IT 2000-MI892          20000420
     TW 550307            B     20030901    TW 2001-90108461       20010409
     CA 2404195           AA    20011025    CA 2001-2404195        20010413 <--
     EP 1274879           A1    20030115    EP 2001-925877         20010413
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
     JP 2003531151        T2    20031021    JP 2001-576967         20010413
     US 2003038082        A1    20030227    US 2002-273862         20021018
     US 6797182           B2    20040928
PRAI IT 2000-MI882        A     20000419
     IT 2000-MI892        A     20000420
     WO 2001-IT185        W     20010413
AB   A process for the purification of organometallic compds. or heteroat. organic
     compds. from oxygen, water and from the compds. deriving from the reaction
     of water and oxygen with the organometallic or heteroat. compds. whose
     purification is sought, comprising the operation of contacting the
     organometallic or heteroat. compound to the purified in the liquid state or in
     form of vapor, pure or in a carrier gas, with a hydrogenated getter alloy,
     and optionally also with one or more gas sorber materials selected among
     palladium on porous supports and a mixture of iron and manganese supported
     on zeolites.
RE.CNT  3     THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5   ANSWER 2 OF 7  CAPLUS  COPYRIGHT 2005 ACS on STN
AN   2001:781204  CAPLUS
DN   135:320125
TI   A process for the purification of organometallic compounds or
     heteroatomic organic compounds with a catalyst based on iron and manganese
     supported on zeolites
IN   Vergani, Giorgio; Succi, Marco
PA   Saes Getters S.p.A., Italy
SO   PCT Int. Appl., 18 pp.
```

AB Organometallic compds. or heteroat. organic compds. are purified, for removal of oxygen, water and compds. derived from reaction of these compds. with oxygen or water, by passage of the compds. through a catalyst bed containing 0.4-5 weight% Pd metal deposited on a porous support (especially Al2O3), and, optionally, a hydrogenated getter alloy and a mixture of Fe and Mn on a zeolite support. The purification is carried on the compound of interest, in the form of the pure compound, a vapor, or entrained in a carrier gas, at between -20° and 100° (preferably between room temperature and 50°) and an absolute pressure of 1-10 bars. The purification method is especially useful for purifying organometallic compds. and heteroat. organic compds. to a purity suitable for chemical vapor depositions or semiconductor fabrication.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1998:700984 CAPLUS
DN 129:304286
TI Production of silicon peroxide compounds for oxidants, bleaches, and disinfectants among other applications
IN Koenigstein, Karsten
PA Germany
SO Ger. Offen., 12 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 19714440	A1	19981015	DE 1997-19714440	19970408 <--
PRAI DE 1997-19714440		19970408		

OS MARPAT 129:304286
AB Silicon peroxide compds. and silicon peroxo acids are prepared by reaction of silanes (e.g., tetraalkoxysilanes, tetraaryloxysilanes, halosilanes, aminosilanes) with hydrogen peroxide. Gels or powders are produced, which are dried. Applications of these compds. include their use as oxidants, bleaching agents, hair bleaches, disinfectants, cleaning agents, desulfurization agents, disizing agents, etchants, radical initiators, PVC stabilizers, drying agents, reducing agents and catalysts, among others. In an example, tetraethoxysilane (1 mol) was reacted with H2O2 (2 mol) in aqueous solution with stirring under vacuum. The resulting product was held at atmospheric pressure for 6-12 h, forming a gel containing water and EtOH, which was dried. The dried product contained 35 weight% peroxide groups.

L5 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1970:42635 CAPLUS
DN 72:42635
TI Chemistry of alane. XIV. Synthesis of dimethylaminodichloroalane
AU Ehrlich, Robert
CS Propellants Lab., Picatinny Arsenal, Dover, NJ, USA
SO Inorganic Chemistry (1970), 9(1), 146-50
CODEN: INOCAJ; ISSN: 0020-1669
DT Journal
LA English
AB (Dimethylamino)dichloroalane was prepared by a variety of methods. Purification of the product prepared by the reaction of Me2NAlH2 with HgCl2 in ether showed that Me2NH2Cl was a by-product impurity. This suggests that the evolution of H in this reaction is the result not of the decomposition of unstable HgH2 but of the reaction of HCl, produced in the decomposition of an intermediate HHgCl, with the hydridic alane hydrogens.

L5 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1968:105657 CAPLUS
DN 68:105657
TI Purification of olefin polymers with methanol
IN Ziegler, Karl; Breil, Heinz; Holzkamp, Erhard; Martin, Heinz
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent

LA English
FAN.CNT 9

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3377332	A	19680409	US 1966-580144	19660913 <--
	US 4125698	A	19781114	US 1958-770484	19581029 <--
	US 3826792	A	19740730	US 1971-125151	19710317 <--
	US 4125698	B1	19881227	US 1987-90001355	19871016 <--
PRAI	DE 1953-Z3799	A	19531117		
	DE 1953-Z3862	A	19531215		
	DE 1953-Z3882	A	19531223		
	DE 1954-Z3941	A	19540119		
	DE 1954-Z4348	A	19540803		
	DE 1954-Z4375		19540816		
	US 1954-469059		19541115		
	DE 1954-Z4603	A	19541211		
	DE 1954-Z4604	A	19541213		
	DE 1954-Z4629		19541227		
	US 1955-482412	A	19550117		
	US 1955-514068	A	19550608		
	US 1955-527413		19550809		
	US 1955-554631	A	19551222		
	US 1958-745998	A1	19580701		
	US 1958-770484	A	19581029		

AB Catalysts prepared by mixing Group IV-B, V-B, or VI-B metal salts with an organometallic compound are used to polymerized ethylene (I), propylene (II), and α-butylene (III). The polymer slurries obtained are treated with MeOH to remove catalyst impurities. Thus, 20 cc. Pr3Al was mixed with 0.2 g. TiCl4 and the black solution was introduced, under N, into an autoclave. Then 60-70 g. I was introduced and heated to 100°. After 15 hrs., the mixture was cooled, excess I was blown off, and the product was stirred with MeOH and extracted with a MeOH solution of HCl and acetone. A 30 g. yield of snow-white granular polyethylene was obtained. When the polymer was pressed between metal plates heated to 150°, the films formed were elastic and could be torn only with the application of great force. The catalyst could also be prepared by mixing the metal salt with the organometallic compound in an inert liquid medium such as liquid paraffin or diesel oil. Similar reactions were carried out using (monomer, metal salt, and organometallic compound given): I, TiCl4, Et3Al; I, TiCl4, tridodecylaluminum; I, Zr acetylacetonate, Et3Al; I, ZrBr4, Et3Al; I, Zr(OBu)4, iso-Bu3Al; I, TiCl4, Et2AlCl; I, ZrCl4, Me2AlOMe; I, TiCl4, piperidyldiethylaluminum; I, ZrCl4, Et2AlNMe2; I, TiCl4, Et2AlSEt; I, TiCl4, Me2Mg; I, ZrCl4, Et2Zn; I, Ti(OBu)4, PhMgBr; I, ZrCl4, BuLi; I, TiCl4, NaAlMe4; II, TiCl4, Et3Al; III, TiCl4, Et3Al; II, ZrCl4, Et3Al.

L5 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
AN 1952:28479 CAPLUS
DN 46:28479
OREF 46:4823c-g
TI Complex ammonium salts
IN Sowa, Frank J.; Kenny, Edward J.
DT Patent
LA Unavailable
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2580473		19520101	US	<--

GI For diagram(s), see printed CA Issue.
AB An entirely new series of quaternary ammonium compds. which can be prepared with primary, secondary, and tertiary amines have been developed. The new series of chemical compds. are surface-active or cationic agents and are adapted for use as antiseptic and germicidal agents, wetting, dispersing, and emulsifying agents. The new compds. have the following general formula, [(R3N)nER'4-n].nX, where N represents quinquevalent N; E represents a quadrivalent element selected from the group consisting of Si, Ti, Ge, Zr, Sn, and Pb; R represents at least 1 hydrocarbon radical and if aliphatic it contains at least 8 C atoms the remaining R radicals are selected from the group consisting of H, aliphatic, aromatic, alicyclic, and heterocyclic radicals; R' is selected from the group

consisting of H, alkyl, aryl, aralkyl, alicyclic, and heterocyclic radicals; X is an anion; and n is an integer from 1 to 4. The new compds. are viscous liquids or solids and exhibit an appreciable water solubility, but the solubility will depend upon the nature and chain length of the hydrocarbon radicals. The products are also soluble in a wide variety of organic solvents. The valuable feature is the fact that the compds. are generally soluble in warm acetone, C6H6, AcOEt, and EtOH, but are insol. in these solvents at room temperature This permits **purification** by recrystn. from such solvents. Specific examples of these compds. are: [(C18H35NMe2)2SiEt2].2Cl, [(C12H25NMe2)4Si].4Cl, [(C12H25NH2)4Si].4Cl, [(C16H33NMe2)Si Me3].Cl, [(CH2.CH2.O.CH2.CH2.NC16H33)4Ti].4Cl, [(C12H25NMe2)4Zr].4Cl, [(C12H25NMe2)4Sn].4Cl, [(HOC9H6N)SiMe3].Cl, and [(C12H25N)4Si].4F.